

Laying the foundations: how foundation skills shape VET student outcomes

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About the research

Laying the foundations: how foundation skills shape VET student outcomes

Angus Hughes, Zhihui Zhang, Tabatha Griffin, NCVER

Foundation skills, which are essential competencies in language, literacy, numeracy, digital and employability skills, underpin social inclusion, workforce participation and productivity. Foundation skills have long been a key priority in the Australian vocational education and training (VET) sector to enhance participation and outcomes in VET programs.

This research explores the relationship between the characteristics and outcomes of learners undertaking foundation skills and how these programs contribute to the training, employment and further study outcomes of learners.

Tracking student pathways and outcomes over five-year periods during 2016 to 2023, the research first examines the diversity of learners undertaking foundation skills programs and their outcomes. It then identifies the student and program characteristics associated with successful foundation skill program completion. Finally, it assesses how undertaking a foundation skills program before or during another VET program influences students' outcomes and evaluates whether combining foundation skills with other VET leads to greater job-related benefits than the completion of a VET program alone.

Key messages

- Students who studied foundation skills alongside their VET programs were more likely to complete that training (by up to 1.8-percentage-points) and more likely to gain employment (by up to 5.6-percentage-points) than similar students who did not enrol in foundation skills training.
- Students did not need to complete a foundation skills program to experience better outcomes with their VET, but each additional foundation skills subject successfully completed was associated with higher VET program completion rates.
- The research identified two distinct groups of foundation skills learners; namely, learners who speak a language other than English (LOTE) at home and those who speak English (non-LOTE). These groups have noticeably different demographics, patterns of VET activity and outcomes.
- LOTE students were more likely to begin their VET study with foundation skills, while non-LOTE students tended to enrol in foundation skills later.
- Completion rates for foundation skills programs are lower than for other VET programs. Completion of a foundation skills program was higher when students were exclusively studying foundation skills full-time and was influenced by other sociodemographic factors, depending on whether the student was a LOTE or non-LOTE learner.
- The research suggests that addressing foundational skills early, either before or alongside other VET programs, helps students to succeed by better preparing them for learning and for the workforce, leading to improved completion rates and job outcomes.

John King
Managing Director, NCVER

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Executive summary

This research demonstrates important differences in the characteristics of foundation skills learners in the Australian vocational education and training (VET) sector and explains how undertaking foundation skills alongside another VET program can improve completions and job-related outcomes. To date, little research has been conducted on the profile and outcomes of foundation skills learners in VET. The findings of this report are therefore timely and relevant for both policymakers and industry stakeholders, as foundation skills are a key priority under the National Skills Agreement and support entry to further education and employment.

Key question	Main findings at a glance
Who are foundation skills students?	<p>Foundation skills learners in this study could be divided into those who speak a language other than English (LOTE), and those who do not (non-LOTE).</p> <p>Both types of learners had distinct patterns of VET activity and journeys compared to one another.</p>
Who successfully completes foundation skills programs?	<p>Foundation skills programs have lower completion rates compared with other VET programs.</p> <p>Completion of foundation skills programs was higher when students were exclusively studying foundation skills (i.e. with no other VET program enrolment) and undertaken full-time, amongst other sociodemographic factors.</p>
Do foundation skills support VET outcomes?	<p>Where VET programs were undertaken alongside an enrolment in a foundation skill program, the student was more likely to complete the VET program and obtain employment.</p>

This research tracked the educational and job outcomes of each student who undertook at least one of 131 different nationally recognised foundation skills programs in scope over a five-year period from 2016 onward. The research leverages NCVER's Master Student Longitudinal Construct (MSLC), which tracks VET student activity over time, and the Student Outcomes Survey (SOS), which captures outcomes reported by students.

Who are foundation skills students?

The analyses identified two distinct groups/clusters of foundation skill learners: predominantly Australian-born English-speaking students (non-LOTE cluster, 46.1% of students), and students born elsewhere speaking a language other than English at home (LOTE cluster, 53.9% of students).

On average, over 60,000 domestic students enrolled in one or more of the designated foundation skills programs each year between 2016 and 2023. These students could be split into two clusters. The LOTE cluster tended to be more highly educated, working-age, female and older. These students overwhelmingly undertook foundation skills programs related to spoken and written English. In contrast, the non-LOTE cluster were younger, with a substantial proportion of early school leavers, and more diverse in terms of gender, disability, and geographic location. The non-LOTE cluster participated in a wider range of foundation skills programs, including those focused on employability skills, digital skills, and general language, literacy, numeracy, and digital literacy capabilities.

Most LOTE cluster students exclusively enrolled in foundation skills programs (56.9% of students), and those who took other VET study tended to have commenced their journey with foundation skills. In

contrast, most non-LOTE cluster students took both foundation skills and other VET (75.5% of students), typically starting with a non-foundation skills VET program and subsequently enrolling in a foundation skills program. This indicates that LOTE learners may pursue foundation skills as a standalone goal, while non-LOTE learners may more commonly use foundation skills to support their broader VET studies, possibly due to identified gaps in key competencies/skills. Policymakers and VET stakeholders seeking to evaluate foundation skills delivery should therefore consider and incorporate this distinction in the population of foundation skills learners and the types of training they engage in.

Who successfully completes foundation skills programs?

Foundation skills programs consistently showed lower completion rates compared to other VET programs, regardless of student cluster (23.5% versus 47.4%). The likelihood of completing a foundation skills program was influenced by a range of sociodemographic and program delivery characteristics.

Full-time study emerged as the strongest predictor of program completion in both clusters, with full-time students being at least twice as likely to complete compared to part-time students, independent of all other characteristics. Students concurrently undertaking another VET program alongside their foundation skills program were also roughly half as likely to complete their foundation skills program, particularly those who commenced foundation skills only *after* starting another VET program. This suggests that students may be enrolling in foundation skills programs to support their other VET studies but may not necessarily intend to complete the foundation skills qualification. A focus on completion rates of foundation skills programs alone may therefore lead to erroneous conclusions about their value.

Numerous sociodemographic and program delivery characteristics were analysed. The key factors associated with completing a foundation skills program are listed below, with the percentage increased odds of completing, after statistically controlling for all other characteristics. For VET sector stakeholders, these results indicate the types of students who are more or less likely to complete, which in turn enables more targeted interventions.

Programs more likely to be completed	Full-time (▲ 244%) <i>vs part-time</i>	Exclusively undertaking foundation skills (▲ 154%) <i>vs overlapping VET program activity</i>
	Government-funded (▲ 10%) <i>vs domestic fee-for-service</i>	Studying at community education/private providers (▲ 31%) <i>vs TAFE</i>
Students more likely to complete	Females (▲ 38%) <i>vs males</i>	Identifying as having a disability (▲ 28%) <i>vs no disability</i>
	Left school early (▲ 16%) <i>vs did not leave school early</i>	Not in the labour force (▲ 5%) <i>vs employed</i>

Do foundation skills support VET outcomes?

Foundation skills learners were more likely to complete VET programs when undertaking foundation skills study alongside their enrolment by around 1 to 1.8 percentage points and obtain employment by 4.8 to 5.6 percentage points.

LOTE cluster students appeared to generally benefit from any foundation skills experience, whether undertaking this prior to or concurrent with their other VET enrolment, while non-LOTE students primarily benefited from concurrent foundation skills delivery. Using Student Outcomes Survey responses, we find that students who undertake foundation skills concurrently are more likely to report obtaining employment after a VET program by around 4.8 to 5.6 percentage points as opposed to comparable enrolments without foundation skills. The results indicate that, for training providers, ensuring timely foundation skills support for those who need it *alongside* a VET program can provide the best student benefits overall.

Students who successfully passed all concurrent foundation skills subjects were substantially more likely to complete their VET program, with each additional passed subject appearing to incrementally increase the likelihood of a VET program completion. This finding suggests that subject-level outcomes in foundation skills programs may be important in identifying benefits. For the non-LOTE cluster, failing to pass one or more foundation skills subjects was highly indicative of non-completion in the concurrent VET program enrolment. This finding can help to alert training providers of the need to provide additional support to students to avoid further failure.

Background

Why foundation skills matter

Foundation skills are essential competencies that underpin workforce participation, productivity, and social inclusion. These skills include English language, literacy, numeracy, and digital literacy (commonly referred to collectively as LLND), as well as employability skills such as problem-solving, teamwork, and planning. Foundation skills are crucial in enabling Australians to effectively engage in the community, workplace, and educational settings (House of Representatives Standing Committee on Employment, Education and Training 2022).

Key points

- Foundation skills are a key priority in the VET system to improve workforce participation, productivity and inclusion
- This research builds upon previous NCVET work on outcomes of foundation skills, as well as student segmentation and journeys
- This work leverages the Master Student Longitudinal Construct (MSLC) and Student Outcomes Survey (SOS) to evaluate the impact of foundation skills over time

Foundation skills have long been a key priority in the Australian vocational education and training (VET) sector (Newton 2016; Joyce 2019). In 2024, the Skills and Workforce Ministerial Council endorsed the new National Foundation Skills Strategy 2025–2035. The strategy underpins a 10-year plan aimed at improving foundation skills through a transparent and collaborative approach between Commonwealth and state/territory governments, key education sector stakeholders and First Nations organisations. The action plan outlines an investment of \$53 million, covering initiatives such as enhancing foundation skills communication activities, workforce analysis, and updating the national foundation skills sector architecture. The strategy will be evaluated against the National Skills Agreement Outcomes Framework to measure progress reliably and consistently and better recognise and respond to the needs of different cohorts.

Despite the major push to develop foundation skills, to date there has been lack of research evaluating the effectiveness of their delivery in the VET sector (Newton 2016; Walstab & Doecke 2023). With this in mind, NCVET conducted the research presented in this report to arrive at a more comprehensive understanding of the relationship between the characteristics and outcomes of foundation skills students and the ways in which foundation skills programs contribute to learners' employment and further study. NCVET has undertaken several projects that have been influential in this work, which are briefly reviewed below.

Prior NCVER research

Foundation skills

In 2022, NCVER published *Journeying through VET: a case study of foundation skills learners* (Circelli et al. 2022). This exploratory study aimed to understand the experiences and outcomes of foundation skills learners by analysing their enrolment paths, program completions, and subsequent employment and further study outcomes. Taking a longitudinal view, this study was able to track the pathways of learners through the VET system. The authors defined four groups of foundation skills learners according to their enrolment patterns:

- those who only enrolled in foundation skills programs
- those who followed foundation skills programs with other VET programs
- those who enrolled in foundation skills and other VET programs concurrently
- those who enrolled in other VET programs before enrolling in foundation skills programs.

Learners who took both foundation skills programs and VET programs (i.e., all but the first group) over the four-year research window were more likely to complete one or more nationally recognised VET qualifications compared to those who *only* enrolled in foundation skills programs. From the Student Outcomes Survey data, it was found that students who completed a foundation skills program also generally had poorer employment outcomes compared to their peers who had completed other (non-foundation skills) VET qualifications. Nonetheless, those employed after completing foundation skills training found the training relevant to their current jobs and reported improvements in their writing and numerical skills.

A more focused NCVER project examining the role of community education providers in delivering foundation skills training was conducted by O'Dwyer and Mihelic (2021). The authors found students at regional community education providers had higher completion rates for foundation skills subjects than those at other training providers. An online survey of community education providers also found that students who did foundation skills tended to improve their self-confidence, self-worth, and develop their soft skills. Together, both NCVER foundation skills projects provided an evidence base for the current research.

VET student segmentation

NCVER has also previously undertaken research aiming to identify distinct VET student segments. Palmer (2022) employed cluster analysis methods to group VET students based on a variety of characteristics from the Total VET Activity dataset. The study applied three clustering algorithms, however the K-means algorithm provided the simplest, fastest, and most interpretable clustering solution. K-means aims to divide data points into a number of different clusters (with the number represented by K), where each data point belongs to the cluster with the nearest mean (average). The segments identified included students in targeted English programs, overseas students studying in Australia, younger students (including those in VET in Schools programs), migrants, and students in social inclusion programs. These analyses offered a basis for further research presented in this report segmenting Foundation Skills students.

Measures of VET success

Recent work by NCVER has highlighted that examining student outcomes at the subject level offers a more nuanced view of success in VET studies, relative to program completions alone (Wibrow, Hall & Griffin 2024; Hall 2024). This research used NCVER’s newly developed Master Student Longitudinal Construct (MSLC) to explore how students use the VET system to develop the skills they require, identifying that program completion may not necessarily be the goal of a student if they have achieved what they needed by completing the individual units in which they had enrolled. The current work built on this research by examining outcomes among foundation skills students who may not have necessarily completed their program but did substantively demonstrate additional learning experience in foundation skills at the subject level.

The current research

NCVER’s prior foundation skills research raised further questions about the characteristics and educational outcomes of foundation skills students. Of particular interest was how foundation skills programs may contribute to learners’ further VET study and employment outcomes. The aim of this project was therefore to comprehensively examine the MSLC dataset and the SOS data for those enrolled in a foundation skills program. This allowed identification of systemic patterns in student and course characteristics, especially those that might indicate a likelihood of disengaging with VET before completing a program.

Scope

The scope of this research was limited to domestic VET learners with at least one enrolment in a *nationally recognised* foundation skills program between 2016 and 2023. After consultation with state and Commonwealth stakeholders, NCVER defined a list of 131 programs in scope. Non-nationally recognised foundation skills study was not considered as part of this research project. This research scope was broadly consistent with Circelli et al. (2022), and more details are presented in Appendix A.

Analysis period

For most analyses, this research took a longitudinal view, examining the same population of learners over a fixed time period to investigate their pathways and how their outcomes develop. A research window of five years was defined to follow each student from their first activity within the VET system. This allowed the outcomes for each student to be observed over a consistent and comparable timeframe and is visually represented below in figure 1.

Figure 1 Setting the five-year research window

		Calendar Year							
		2016	2017	2018	2019	2020	2021	2022	2023
Commencing cohort	2016	1	2	3	4	5			
	2017		1	2	3	4	5		
	2018			1	2	3	4	5	
	2019				1	2	3	4	5

Activity commencing in 2016 marks the beginning of the dataset, as this is the first year of widespread and valid data submitted with a corresponding unique student identifier (USI). The data were created using NCVER’s Master Student Longitudinal Construct and Student Outcomes Survey, with details presented in Appendix B – Longitudinal data approach.

Tracking subject-level VET and foundation skills activity

This research took a student-centric view, incorporating the history and experience of an individual tracked over time using the unique student identifier (Hall 2024). To this end, NCVER derived numerous variables capturing the timing and number of different programs and subjects enrolled in at each point of a student’s journey, which are described below.

Incorporating the timing of foundation skills and other VET study

Subject-level enrolment date data were used to identify the start and end of each VET and foundation skills program. This was then used to calculate periods of overlap in VET and foundation skills study, and (where applicable) to determine which type of program came first.

Distinguishing the timing of foundation skills delivery is important, because it may indirectly capture different experiences in and motivations for taking foundation skills. Two hypothetical scenarios are outlined in figure 2, where two students undertake identical programs in the same calendar year, but the reasons and timing of their foundation skills activity relative to their other VET activity differ meaningfully and may reflect their outcomes in both programs.

Figure 2 Distinguishing the timing of foundation skills programs

Scenario A: foundation skills undertaken in full before VET study

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
		Student enrolls in a foundation skills course to improve their communication (10727NAT)				Preparatory foundation skills study completed	Student enrolls in a VET program (BSB30120)		Continuing studies, program to be completed next year	

Scenario B: VET study undertaken first, with foundation skills undertaken concurrently within the enrolment

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Student enrolls in their chosen VET program (BSB30120)		Student identified as requiring foundation skills; enrolls in a program (10727NAT)			Four remedial foundation skills subjects passed			Continuing studies, program to be completed next year		

Legend VET program enrolment Foundation skills enrolment

- Scenario A: The individual has sought out and enrolled in a Spoken and Written English program, with the aim of improving their communication. For example, the student may have felt they needed some preparatory foundation skills study or undertook the program as a recommended bridging course, following a pre-enrolment assessment by the registered training organisation (RTO). In either case, once the foundation skills program is completed, this student feels empowered to undertake a separate program in VET.

- Scenario B: The individual seeks out and enrolls in a VET program first, but within a matter of weeks a foundation skills program is recommended for them, following a formal or informal assessment of their skills. They are now undertaking both the original VET and supplementary foundation skills programs concurrently, although they may not necessarily have intended on taking the foundation skills course at the outset.

Quantifying outcomes of foundation skills subject activities

Simply analysing the potential benefits of foundation skills program completions may mask important differences in foundation skill activity at the subject level. An example is presented in figure 3. Two students have both undertaken a Certificate I in Access to Vocational Pathways (FSK10119). To achieve this qualification, competency must be demonstrated in 11 subjects (one core, ten elective). Neither student has completed the program, so their program-level outcomes are identical, but Student B has clearly engaged in more study and successfully passed more subjects.

Figure 3 Two foundation skills students with identical program outcomes but different subject-level outcomes



This subject-level view is especially important, given that, as illustrated above, foundation skills programs may be undertaken as a means of supporting other VET studies, without any strong intention by the student to fully complete the corresponding foundation skills qualification. Drawing on the work of Wibrow, Hall and Griffin (2024) and Hall (2024), this work examines students who successfully pass all subjects in which they enrol by creating cumulative counts of the number of foundation skills subjects passed and not passed over time. The definition of subjects passed is detailed in Appendix C – Subject-level analyses.

Profiling foundation skills learners

Clustering foundation skills students

To better understand the outcomes of foundation skills, a cluster analysis was first undertaken to identify distinct subsets of learners. Different kinds of students may have different experiences and outcomes of their foundation skills study, and applying this analysis helps to understand the variability in why individuals take these programs and the benefits realised from them.

On average, over 60,000 domestic students enrolled in one or more designated foundation skills programs each year between 2016 and 2023.¹ After applying the research scope to the MSLC dataset, 511,375 students were identified as having commenced at least one foundation skills program between 2016 and 2023.

Key points

- Cluster analysis identified two distinct groups of Foundation Skills learners: LOTE (Language Other Than English) and non-LOTE
- LOTE learners were older, more likely to be female, and tended to focus exclusively on English language foundation skills programs
- Non-LOTE learners were younger, more likely to be male, and engaged in a broader range of Foundation Skills programs, more often alongside other VET programs

Following Palmer (2022), a K-means clustering algorithm was chosen and the sociodemographic information of the selected students at the time of their first foundation skills program enrolment was retained. This included 11 different social and demographic characteristics, such as age, gender, education level, and employment status. A full list of characteristics is presented in Appendix A.

Distinguishing LOTE and non-LOTE foundation skills learners

The cluster analysis primarily divided foundation skills learners into two distinct population groups, defined by whether the student was born in Australia and/or spoke a language other than English.² These were labelled the LOTE ($n = 275,720$) and non-LOTE ($n = 235,650$) clusters. The distribution of these two differentiating characteristics are presented in table 1. A comprehensive breakdown of all sociodemographic characteristics incorporated in the cluster analysis is presented in table 2, with the two imagined learners representative of each cluster presented in figure 4.

Table 1 Distribution of students born in Australia and speaking a language other than English at home by cluster

Cluster	Born in Australia			English spoken at home		
	Y	N	%Y	Y	N	%Y
Non-LOTE cluster	222,785	12,865	94.5%	211,885	7,730	89.9%
LOTE cluster	3,245	272,480	1.2%	25,930	232,980	9.4%
Total	226,030	285,345		237,815	240,710	

Notes: Counts at the student level, rounded to the nearest 5. Results inclusive of all students enrolled in one or more foundation skills programs between 2016 and 2023.

1 The full range of data was chosen for this analysis as it required no longitudinal information, but rather a single set of commencing sociodemographic characteristics for each foundation skills student.

2 The number of clusters identified is chosen by the researcher. After trying several different solutions, for simplicity and interpretability, only two clusters were specified.



Table 2 Sociodemographics of each cluster

Cluster	Non-LOTE	LOTE
N	235,650	275,720
Gender (%)		
F	92,270 (39.2)	182,135 (66.1)
M	142,355 (60.4)	93,115 (33.8)
Unknown/not stated	1,030 (0.4)	475 (0.2)
Age group (%)		
Under 15	1,065 (0.5)	65 (0.0)
15–19	90,105 (38.2)	12,945 (4.7)
20–24	41,500 (17.6)	24,455 (8.9)
25–44	68,230 (29.0)	142,275 (51.6)
45+ years old	34,750 (14.7)	95,985 (34.8)
Indigenous (%)		
N	180,010 (76.4)	258,320 (93.7)
Y	37,620 (16.0)	335 (0.1)
Unknown	18,020 (7.6)	17,065 (6.2)
Disability (%)		
N	162,730 (69.1)	22,6925 (82.3)
Y	50,585 (21.5)	12,335 (4.5)
Unknown	22,340 (9.5)	36,460 (13.2)
Remoteness (%)		
Major cities	133,470 (56.6)	242,700 (88.0)
Regional/remote areas	96,235 (40.8)	28,910 (10.5)
Overseas/No usual address	155 (0.1)	1960 (0.7)
Unknown	5,795 (2.5)	2,155 (0.8)
Socio-Economic Indexes for Areas (SEIFA) (%)		
Quintile 1: most disadvantaged	61,395 (26.1)	88,420 (32.1)
Quintile 2	51,415 (21.8)	47,695 (17.3)
Quintile 3	48,530 (20.6)	47,575 (17.3)
Quintile 4	38,060 (16.2)	47,900 (17.4)
Quintile 5: least disadvantaged	29,805 (12.6)	39,895 (14.5)
Unknown	6,445 (2.7)	4,240 (1.5)
Language other than English (%)		
N	211,885 (89.9)	25,930 (9.4)
Y	7,730 (3.3)	232,980 (84.5)
Unknown	16,035 (6.8)	16,810 (6.1)
Labour force status (%)		
Employed	64,955 (27.6)	46,165 (16.7)
Not employed, not seeking employment (not in labour force)	53,375 (22.6)	103,835 (37.7)
Not employed, seeking employment (unemployed)	81,760 (34.7)	72,915 (26.4)
Unknown	35,560 (15.1)	52,810 (19.2)
Highest education status (%)		
Diploma and above	11,040 (4.7)	44,010 (16.0)
Certificate I to IV	36,930 (15.7)	13,370 (4.8)
Year 12	53,510 (22.7)	96,845 (35.1)
Year 9/10/11	104,630 (44.4)	57,880 (21.0)
Did not go to school	1,020 (0.4)	19,855 (7.2)
Unknown	28,530 (12.1)	43,760 (15.9)
Born in Australia (%)	222,785 (94.5)	3,245 (1.2)
Ever early school leaver (%)	63,235 (26.8)	8,110 (2.9)

Notes: Counts at the student level, rounded to the nearest 5.

Source: National VET Provider Collection 2016–23.

Figure 4 Example learners from each cluster

<div>Non-LOTE</div> <div>n = 235 650</div> <div></div> <div>James</div> <div>Male, age 19</div>	<div>I was born in Australia</div> <div>I speak English at home</div> <div>I'm a man</div> <div>I'm a young adult</div> <div>I live in a smaller city or rural area</div> <div>I am currently unemployed</div> <div>I'm more likely to be living with a disability</div> <div>I didn't finish Year 12 and left school early</div>	<div>Born in Australia</div> <div>Language</div> <div>Gender</div> <div>Age</div> <div>Location</div> <div>Employment</div> <div>Disability</div> <div>Education</div>	<div>I was born overseas</div> <div>I speak another language at home</div> <div>I'm a woman</div> <div>I'm an adult</div> <div>I live in a major city</div> <div>I am not currently in the labour force</div> <div>I do not have a disability.</div> <div>I finished Year 12 and attained a Bachelor's</div>	<div>LOTE</div> <div>n = 275 720</div> <div></div> <div>Mary</div> <div>Female, age 36</div>
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Notes: Learners are purely hypothetical and intended only to broadly represent characteristics of students in each cluster.

The age and educational attainment of learners upon entering foundation skills further differentiated individuals in each cluster. The LOTE cluster was skewed toward working-age and older populations, with 86.4% aged 25 and above. In contrast, the non-LOTE cluster was noticeably younger, with 56.3% under 25 years old and over a third in the 15–19 age bracket. It is possible that this age difference reflected the non-LOTE cluster learners making up for missed secondary schooling. Over a quarter of individuals entering foundation skills in the non-LOTE cluster were identified as early school leavers (26.8%), compared to just 2.9% in the LOTE cluster. Likewise, the non-LOTE cluster tended to enter foundation skills with somewhat lower levels of education, with around 44.4% having completed schooling up to Year 9/10/11. In contrast, most of the LOTE cluster entered foundation skills with education levels at or above Year 12 (55.9%), with 16.0% holding diplomas or more advanced qualifications.

Gender, disability, labour force status and geographic regions also differed between the clusters. The LOTE cluster was predominantly female (66.1% women), while the non-LOTE cluster was more male (60.4% males). Rates of self-reported disability were higher amongst the non-LOTE cluster (21.5%) compared to the LOTE cluster (4.5%). The LOTE cluster had a comparatively higher share (37.7%) of learners not in the labour force, which may reflect learners engaged in caregiving responsibilities, pursuing education, or having reached retirement. Finally, the non-LOTE group showed a more varied geographic spread, with 56.6% in major cities and 40.8% in regional or remote areas, whereas LOTE learners were overwhelmingly located in major cities (88.0%).

Types of foundation skills programs undertaken by each cluster

Clear differences emerged in the types of foundation skills study undertaken by each cluster allocation. The top 10 programs by cluster are presented in figure 5.

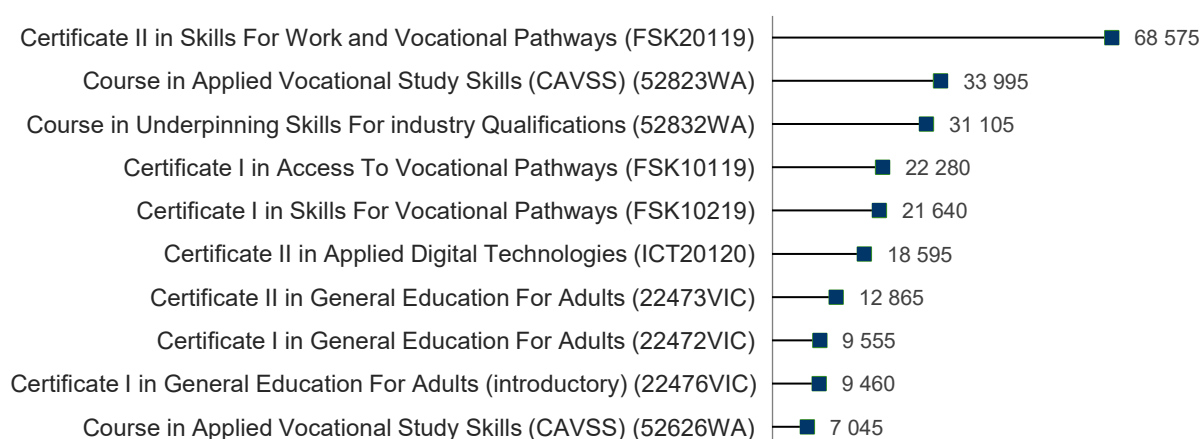
The most common programs for the LOTE cluster focused on spoken and written English or English as an additional language (EAL). While these programs vary in level (from courses to certificate IIs), none stood out as the most popular. This cluster appeared to engage in foundation skills overwhelmingly for the language and literacy aspects of LLND, rather than to support numeracy, digital or employability skills.

Students within this cluster included those undertaking study via the Adult Migrant English Program (AMEP), which provides free English language tuition to eligible migrants and humanitarian entrants to help them to improve their English skills and settle into Australia.³

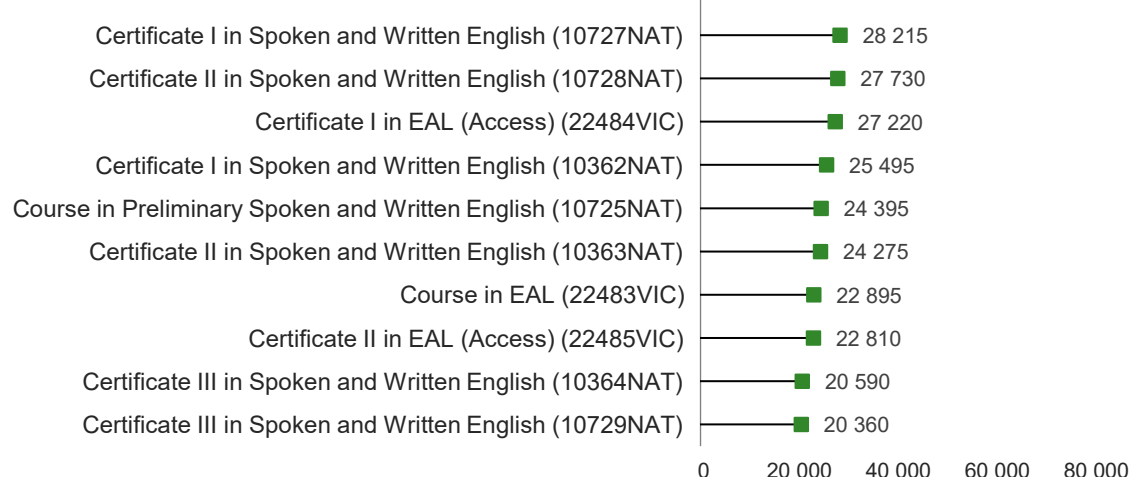
In contrast, there was more diversity in the types of foundation skills programs undertaken by the non-LOTE cluster. The clear top program was the Certificate II in Skills for Work and Vocational Pathways (FSK20119), which is designed to help individuals to improve their employability skills and prepare for future vocational opportunities. Two WA-specific CAVSS programs also appeared, which are unique in being designed to be co-delivered with another VET enrolment and are tailored to support the individual. The remaining programs covered topics such as digital skills (e.g. ICT20120) and non-specific LLND capabilities (e.g. 22473VIC). This cluster therefore appeared to engage in foundation skills programs for a wider range of LLND and employability skills.

Figure 5 Top 10 foundation skills program enrolments by student cluster

Non-LOTE cluster



LOTE cluster



Notes: Counts at the program-enrolment level, rounded to the nearest 5. Results inclusive of all foundation skills programs commencing between 2016 and 2023 for students in scope, by cluster.

³ A specific assessment of the AMEP program was out of scope for this research project.

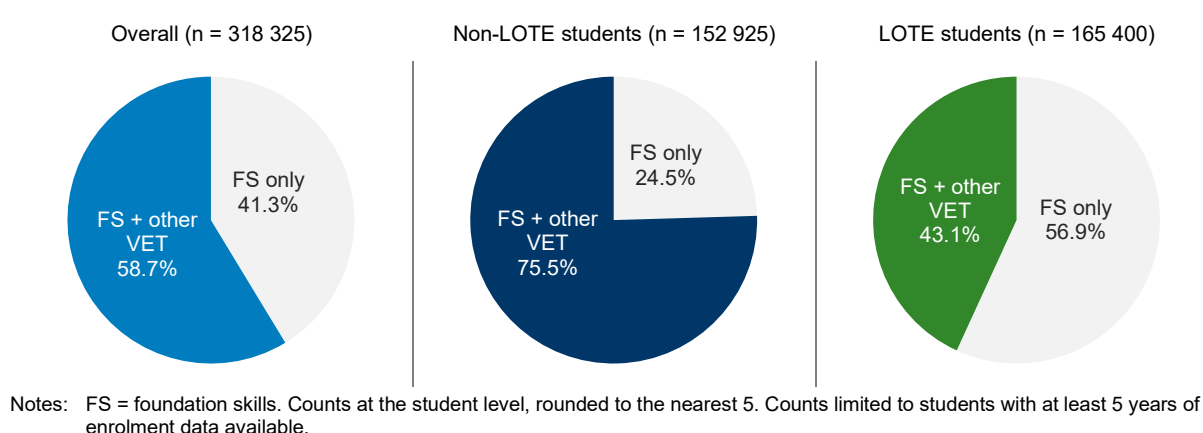
Foundation skills and further VET activity undertaken by cluster

LOTE cluster students tend more towards exclusively undertaking foundation skills

A key finding from the work of Circelli et al. (2022) was the diversity of journeys through the VET system for foundation skills learners. Of particular interest was the cohort of students commencing at least one foundation skills program between 2016 and 2019 who *only* enrolled in foundation skills programs. This group appeared less likely to complete any VET qualification over the research period.

This project therefore examined the share of students in each cluster who exclusively enrolled in foundation skills during the five-year research window (see the Analysis period section for details). The results are presented in figure 6.

Figure 6 VET activity undertaken over a five-year research window by foundation skills student cluster



The overall proportion of foundation skills students who enrolled only in foundation skills programs was consistent with the results of Circelli et al. (2022), despite the timeframe and sample sizes of the current research project being larger. However, the cluster analysis revealed substantial differences in the VET activity undertaken by non-LOTE and LOTE cluster learners. A majority (56.9%) of those assigned to the LOTE cluster *only* undertook foundation skills programs during their five-year window. For the non-LOTE cluster, however, around three in four (75.5%) undertook at least one other VET program, aside from their foundation skills activity.

This result may reflect different intentions in undertaking foundation skills between the clusters. The LOTE cluster learners may be more inclined to study foundation skills in and of themselves, whereas the non-LOTE cluster learners may undertake foundation skills as a means of supporting their VET studies. While this finding is speculative, further evidence indirectly supporting the idea is presented later in this report, in the ‘When VET students take foundation skills’ section.

Non-LOTE cluster students tend to undertake fewer foundation skills programs

When examining the 58.7% of foundation skills students who undertook both foundation skills and VET programs during the research window, this research found additional differences between the clusters in terms of the number of VET and foundation skills programs enrolled in. The distribution of foundation skills and VET programs enrolled in over the research window is shown in figure 7.

At a high level, the findings indicate that:

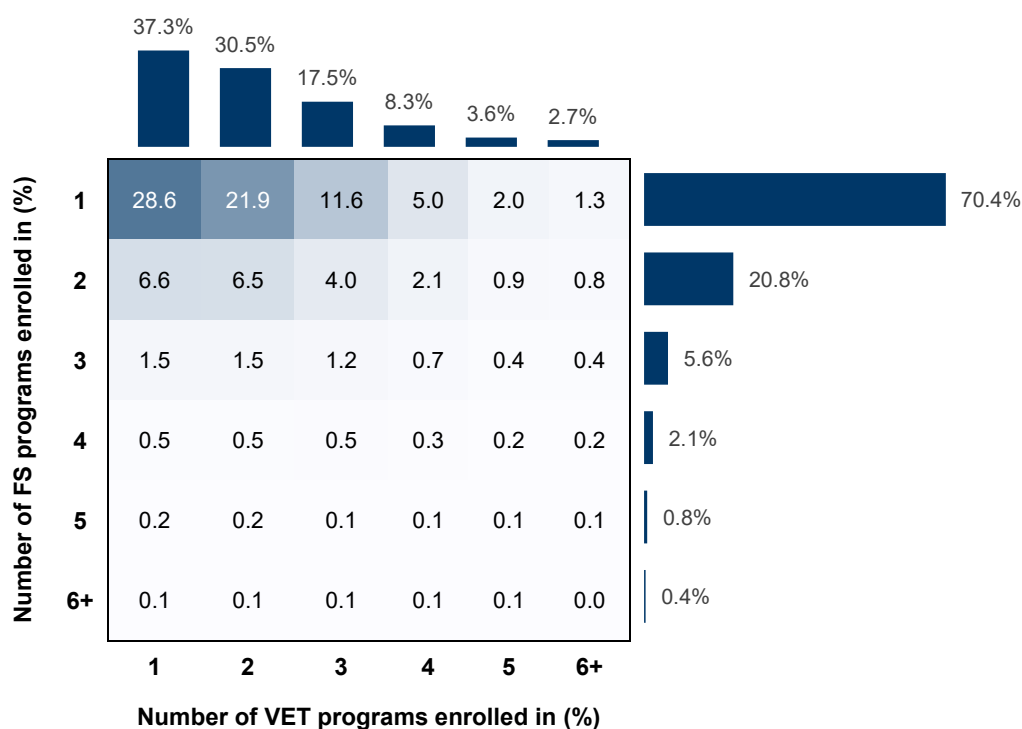
- LOTE cluster students tend to undertake comparatively more foundation skills programs:
 - Nearly half (44.9%) of the LOTE cluster students enrolled in more than one foundation skills program during the research window, with around a quarter (25.2%) enrolling in two separate foundation skills programs, and around one in five (19.7%) enrolling in three or more. In contrast, most non-LOTE cluster students (70.4%) enrolled in just one foundation skills program, and less than one in ten (8.9%) enrolled in three or more.
- Non-LOTE cluster students tend to undertake more comparatively more VET programs:
 - A majority (62.7%) of non-LOTE students undertook more than one VET program (apart from their foundation skills studies) during the research window, with around one in three (32.1%) enrolling in three or more. On the other hand, most of the LOTE cluster (50.8%) only undertook one VET program.
- The most frequent enrolment pattern was for just one foundation skills program enrolment and one VET program enrolment:
 - In both clusters, roughly 28% of students only undertook a single VET and foundation skills program during the research window. The only other pattern that came close to this frequency was amongst the non-LOTE cluster, where 21.9% of students took two VET programs and one foundation skills program.⁴

Overall, in both clusters around one in four students undertook one foundation skills and VET program each. The key difference was in students who undertook more study beyond this. The LOTE cluster seemed just as likely to have taken additional foundation skills programs as they were VET programs, whereas the non-LOTE cluster primarily took additional VET programs, with most only enrolled in one foundation skills program over the five-year research window.

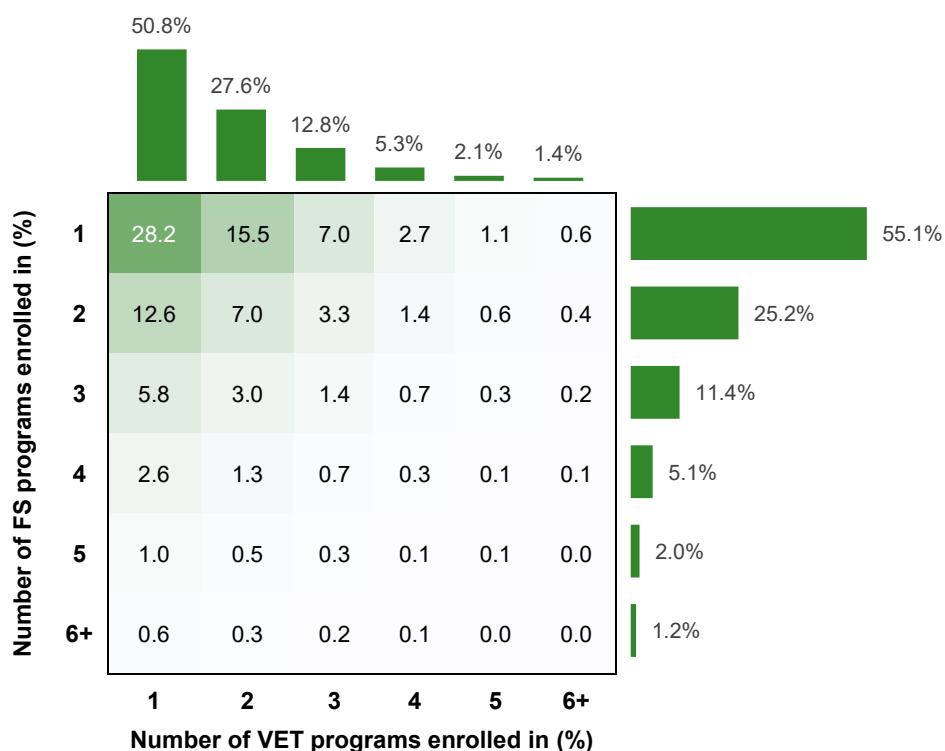
⁴ Note that the timing of when the VET and FS study was delivered is considered later in the section, 'When VET students take foundation skills'.

Figure 7 Total number of enrolments among students undertaking both foundation skills and other VET programs over the five-year research window

Non-LOTE cluster



LOTE cluster



Notes: FS = foundation skills; VET = any other non-foundation skills VET program. Percentages at the student-count level. These results do not consider whether the program was completed or not. Students only undertaking FS during the five-year period excluded.

✓ Factors affecting foundation skills program completion

A core focus of this research was understanding the systematic patterns in student and course characteristics that signalled a higher likelihood of disengaging from VET before completing a program. This section assesses the foundation skills programs themselves to identify the factors associated with not completing the program. A descriptive analysis of completion rates in comparison to other VET programs is presented first, followed by statistical modelling aiming to isolate key drivers of foundation skills program completion.

The results in this section are based on a dataset of students followed over a five-year research window (see Analysis period), limited to foundation skill program completion outcomes, along with their sociodemographic and program characteristics as at their most-up-to-date enrolment activity data available.

Baseline levels of foundation skills program completion

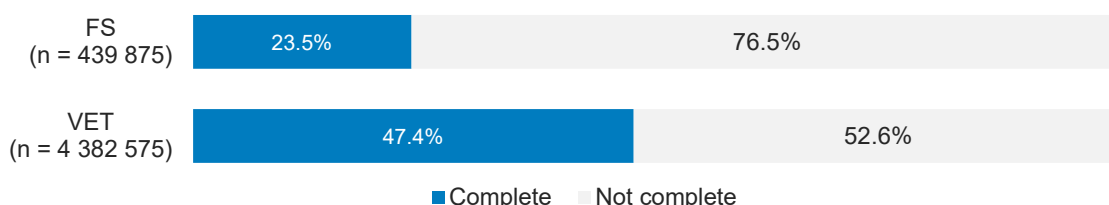
Key points

- Foundation Skills programs have notably low completion rates compared to other VET programs, regardless of student cluster (LOTE or non-LOTE)
- Programs undertaken full-time, without other concurrent VET program enrolments, and/or at private training or community education providers were associated with higher completion rates.
- Completion is influenced by sociodemographic factors, with females, students with disabilities, early school leavers, and higher prior education more likely to complete. The impact of age, labour force status, and socioeconomic

Foundation skills programs have low completion rates, regardless of cluster

Overall, the foundation skills programs included were *much less likely* to be completed compared to (non-foundation skills) VET programs, as illustrated in figure 8. During the research window, more than three-quarters of the foundation skills program enrolments were not completed by the student.⁵

Figure 8 Overall completion rates across the research window between foundation skills and other VET programs



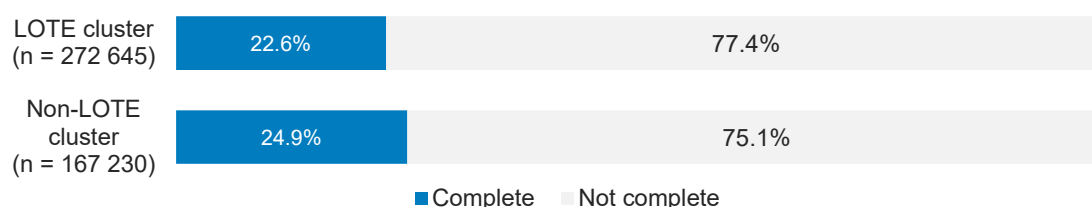
Notes: Results inclusive of all programs with a known outcome (i.e. non-continuing) for students within the research window (i.e. commencing VET studies between 2016 and 2019 and followed for the subsequent five years). Counts rounded to the nearest 5.

⁵ Programs and RTOs with more than 100 enrolments and no reported completions across the entire VET dataset were removed from the analysis as outliers. There were six foundation skills programs meeting these criteria, with almost all records removed from a set of WA-based foundation skills programs that only report outcomes at the subject level and are designed to be co-delivered as tailored additional educational support for another VET program enrolment (e.g. 52823WA Course in Applied Vocational Study Skills/52832WA Course in Underpinning Skills for Industry Qualifications). Only three RTOs met these criteria, removing 504 enrolment records in total.

The overall completion rate for non-foundation skills VET programs was in line with the historical averages for qualifications starting between 2016 and 2019 previously published by NCVER; a range between 45 and 50% can be considered standard for VET completion rates during this time. The discrepancy between this range and the overall completion rate of the foundation skills programs is stark and indicates that the completion rates for foundation skills programs are anomalous within the sector.

There was no strong indication that the LOTE and non-LOTE clusters meaningfully differed in their completion rates of foundation skills programs, as shown in figure 9. Nonetheless, as highlighted earlier, the LOTE cluster tended to enrol in more programs over the course of the research window. While it does not appear that cluster membership is particularly influential on whether a foundation skills program is completed on average, in the following section these clusters are analysed separately, as the respective factors influencing whether these students complete may still differ.

Figure 9 Overall completion rates of foundation skills programs across the research window by cluster



Notes: Results inclusive of all foundation skills programs with a known outcome (i.e. non-continuing) for students within the research window (i.e. commencing VET studies between 2016 and 2019 and followed for the following 5 years). Counts rounded to the nearest 5.

Modelling the probability of completing a foundation skills program

Next, predictive models of whether a student completed a foundation skills program were created. The goal of these models was to find and describe the most important student and course characteristics associated with program completion. Models for the LOTE and non-LOTE clusters were fitted separately. Technical details are presented in Appendix D – Foundation skills program completion modelling.

Interpreting the results







In the sections below the factors predictive of completion are divided into program/program delivery characteristics and student sociodemographics. Each factor is presented in terms of odds ratios. These show how the odds of completing a foundation skills program differ between groups, *holding all other factors constant*. That is, all effects reported statistically control for other program and sociodemographic characteristics.

An odds ratio of 1 translates to equal odds between groups, indicating no difference, while an odds ratio greater than 1 indicates increased odds in the comparison group and less than 1 indicates decreased odds. For example, an odds ratio of 2 means the odds of completing are twice as high in the comparison group, while an odds ratio of 0.5 means the odds of completing are halved. Complete model parameters, including model fit statistics and log odds with standard errors, are presented in Appendix D – Foundation skills program completion

Program and program delivery characteristics

Students exclusively studying foundation skills full-time had the highest probability of completing the program

Table 3 Odds of completing a foundation skills program by program and program delivery characteristics

Characteristic		Subgroup(s) more likely to complete	Reference group	Comparison group	Non-LOTE odds (95% CI)	LOTE odds (95% CI)
Full-time status		Full-time students ▲	Part-time	Full-time	3.44 (3.31, 3.58)	3.56 (3.47, 3.65)
VET study overlap		Students exclusively undertaking foundation skills ▲	No overlap – FS only	Started VET during FS	0.49 (0.47, 0.52)	0.65 (0.62, 0.68)
				Started FS during VET	0.35 (0.33, 0.36)	0.46 (0.43, 0.48)
Training provider		Students studying at community education providers or private training providers ▲ (vs TAFE or university)	TAFE	University	0.83 (0.73, 0.93)	0.76 (0.72, 0.80)
				Private training provider	1.59 (1.52, 1.66)	1.51 (1.46, 1.57)
				Enterprise provider	0.97 (0.89, 1.07)	0.57 (0.48, 0.67)
				Community education provider	2.55 (2.43, 2.67)	1.31 (1.27, 1.36)
Program level of education		Students undertaking programs at the Cert. I level ▲	Certificate I	Statements of attainment	0.41 (0.19, 0.88)	0.40 (0.16, 0.98)
				Certificate II and above	1.15 (1.06, 1.25)	0.44 (0.38, 0.51)
Funding source		Government funded students ▲	Domestic fee-for-service	Government-funded	1.32 (1.26, 1.38)	1.10 (1.06, 1.15)
COVID during enrolment		Enrolments undertaken prior to COVID (or post for LOTE cluster) ▲	Pre	During	0.75 (0.70, 0.81)	1.02 (0.98, 1.06)
				Post	0.62 (0.59, 0.65)	1.12 (1.08, 1.16)

Notes: FS = foundation skills. Odds greater than 1 indicate the comparison group have higher odds of completing the foundation skills program relative to the reference group; odds less than 1 indicate the reference group have higher odds of completing relative to the comparison group. 95% CI = Wald confidence interval. Non-significant values are presented in grey.

As shown in table 3, the most important factor by far in predicting a successful completion was whether the student was undertaking their study full-time (versus part-time). The odds of a full-time foundation skills student completing their enrolment were around three times that of part-time students. This result was consistent with the work of Ong and Circelli (2018), who found that full-time status was amongst the most important predictors of students completing any given VET qualification. Although those who took foundation skills full-time had a markedly higher probability of completing, most enrolments were undertaken part-time, as shown in table 4.

Students undertaking a separate VET program simultaneously with foundation skills (that is, having concurrent, overlapping VET and foundation skills enrolments) were less likely to complete their foundation skills program. Those who started a foundation skills program *after* having enrolled in a VET course in particular were less likely to complete than those who undertook foundation skills study alone. It is possible that individuals who enrol in a foundation skills program after having enrolled in a VET program are doing so primarily to support their VET program rather than aiming to complete the foundation skills program itself. As can be seen in table 4, while most foundation skills programs were

taken exclusively (that is, with no overlapping study in another VET program), those in the non-LOTE cluster were more likely to take their foundation skills program after having enrolled in VET (19.9%).

Table 4 Distribution of full-time students and VET enrolment overlap across for foundation skills learners in each cluster

Cluster	N	Full-time students (%)		VET overlap (%)		
		Full-time	Part-time	No overlap – FS only	Started VET during FS	Started FS during VET
Non-LOTE cluster	167,230	15.0	85.0	69.4	10.7	19.9
LOTE cluster	272,645	22.4	77.6	88.9	6.5	4.5
Total	439,875	19.6	80.4	81.5	8.1	10.4

Notes: Counts at the program enrolment level, rounded to the nearest 5. Results inclusive of all programs with a known outcome (i.e. non-continuing) for students within the research window (i.e. commencing VET studies between 2016 and 2019 and followed for the subsequent five years).

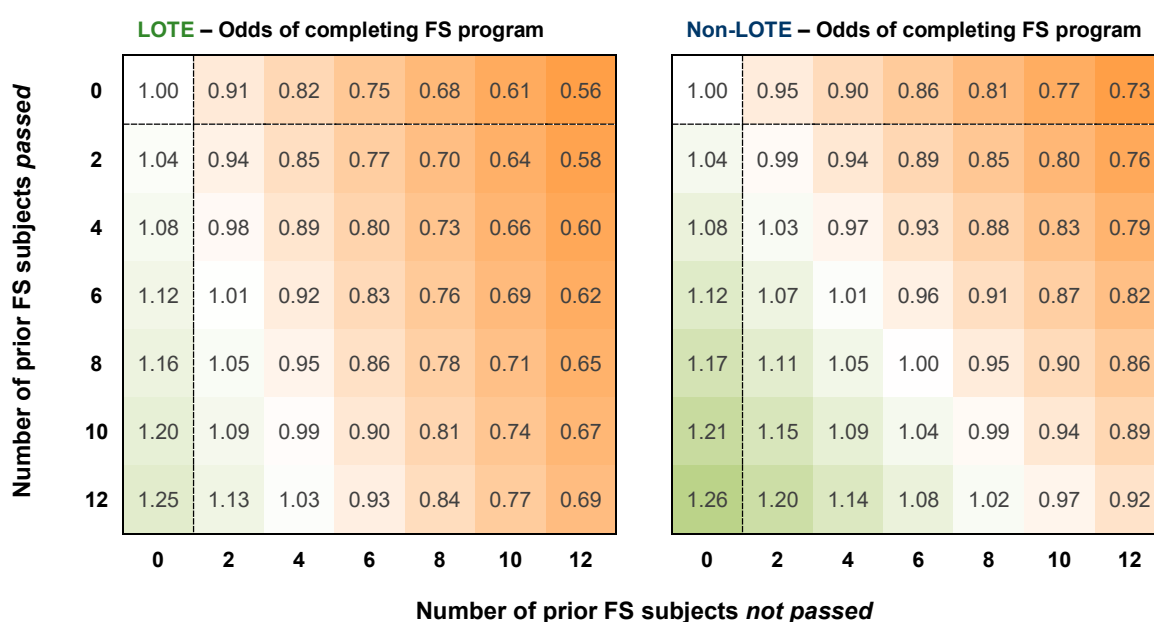
Students' prior foundation skills experience shaped their probability of completion

As detailed previously in the section, 'Quantifying outcomes of foundation skills subject activities', the analysis dataset was constructed to index and tally outcomes of each student's foundation skills activity over time. Cumulative counts of the number of foundation skills subjects the student had passed and not passed up until that point were calculated as at the beginning of each foundation skills program enrolment. This provided a numeric representation of foundation skills history, in consideration of prior performance, at a more nuanced level than just the program completions.

The model-based results are presented in figure 10. These results display the odds of completing the foundation skills program *relative to a student with no prior foundation skills history*. Moving down the first column in each cluster indicates the odds of completion if *all* prior foundation skills subjects were passed. The odds are similar in both clusters, with roughly an additional 2% higher odds of completing for each prior foundation skills subject passed. The odds of completion where *all* prior foundation skills subjects were not passed are presented across the first row. In both clusters, a prior history of not passing foundation skills subjects reduced the odds of completing a subsequent program, although the effect was more pronounced in the LOTE cluster.

Looking across the diagonal shows that a non-LOTE student with an equal number of foundation skills subjects passed and not passed to date will have similar odds of completing compared to a student with no prior foundation skills subject experience. That is, for non-LOTE students, the negative impact of not passing a given prior foundation skills subject was only slightly larger than the positive impact of passing. For the LOTE cluster, however, *any* prior history of failing or withdrawing from a foundation skills program has a larger negative effect, one that is not easily counterbalanced by previous successful completion of subjects.

Figure 10 Odds of completing a foundation skills program by history of foundation skills subjects passed (rows) and not passed from (columns) prior to enrolment



Notes: A program enrolment with no prior experience is treated as the reference (odds = 1); all odds within the table are relative to this. Higher odds of completing the foundation skills program compared to no prior experience are shown in **green**, lower odds are shown in **orange**.

Programs delivered at private training and community education providers and/or at the certificate I level were more likely to be completed

The training provider and level of education were influential in similar ways across both clusters. Consistent with the findings of O'Dwyer and Mihelic (2021), foundation skills study delivered by community education providers provided better outcomes relative to TAFE (technical and further education), especially amongst the non-LOTE group. Private training providers appeared to have higher completion rates, while universities had much lower completion rates; this latter finding is also consistent with previous NCVER research (Ong & Circelli 2018). Most foundation skills programs included in the research scope were at the certificate I level, which were more likely to be completed compared to statements of attainment or certificate IIs in the LOTE cluster.









Finally, government-funded programs were more likely to be completed when compared to domestic fee-for-service programs. The increased completions within government-funded enrolments may reflect the increased funding support for registered training organisations that specialise in the provision of foundation skills. Enrolments undertaken during or post the 2020 COVID pandemic were less likely to be completed for the non-LOTE cluster specifically, which is consistent with the dramatic shift in operations necessitated by the pandemic.

Sociodemographic characteristics

Females, students with a disability, early school leavers and those with higher levels of prior education were more likely to complete a foundation skills program

A range of sociodemographic characteristics used in the cluster analysis were included in the models,⁶ with some commonalities and key differences observed between the clusters, as shown in table 5. Independent of all other characteristics, in both clusters the odds of a female student completing was higher than a male (38% higher amongst the non-LOTE cluster, and 42% higher amongst the LOTE), and students who had completed prior education above the Year 12 level had higher odds compared to those at or below this. Both results are consistent with previous research (Ong & Circelli 2018).

Table 5 Odds of completing a foundation skills program by student sociodemographic characteristics

Characteristic	Subgroup(s) more likely to complete	Reference group	Comparison group	Non-LOTE odds (95% CI)	LOTE odds (95% CI)
Gender	 Females ▲	Males	Females	1.38 (1.34, 1.42)	1.42 (1.38, 1.45)
Previous highest education level	 Higher levels of prior education ▲	Year 12	Did not go to school	1.01 (0.83, 1.23)	0.57 (0.54, 0.60)
			Year 9/10/11	0.92 (0.88, 0.96)	0.87 (0.84, 0.89)
			Certificate I to IV	1.31 (1.25, 1.37)	1.47 (1.41, 1.54)
			Diploma and above	1.38 (1.28, 1.48)	1.33 (1.28, 1.37)
Disability status	 Individuals identifying as having a disability ▲	No disability	Disability	1.47 (1.42, 1.52)	1.28 (1.22, 1.34)
Indigenous status	 NA	Non-Indigenous	Indigenous	1.01 (0.97, 1.05)	0.76 (0.52, 1.12)
SEIFA	 LOTE: Higher levels of disadvantage ▲ Non-LOTE: Lower levels of disadvantage ▲	Quintile 1: most disadvantaged	Quintile 2	1.23 (1.18, 1.28)	0.99 (0.96, 1.02)
			Quintile 3	1.17 (1.13, 1.22)	0.87 (0.85, 0.90)
			Quintile 4	1.22 (1.17, 1.28)	0.87 (0.84, 0.90)
			Quintile 5: least disadvantaged	1.33 (1.26, 1.40)	0.73 (0.70, 0.76)
Labour force status	 LOTE: Unemployed and not in the labour force ▲ Non-LOTE: Employed and not in labour force ▲	Employed	Unemployed	1.05 (1.01, 1.09)	1.26 (1.22, 1.31)
			Not in labour force	0.72 (0.69, 0.75)	1.24 (1.20, 1.28)
Early school leavers	 LOTE: Individuals left school early ▲	Non-early school leavers		1.16 (1.11, 1.22)	1.24 (1.16, 1.33)
Regional/remote learners	 Regional remote ▲	Major cities	Regional remote	1.14 (1.11, 1.18)	1.12 (1.08, 1.16)

Notes: FS = foundation skills. Odds greater than 1 favour the comparison group; odds less than one favour the reference group. 95% CI = Wald confidence interval. Non-significant values are presented in grey.

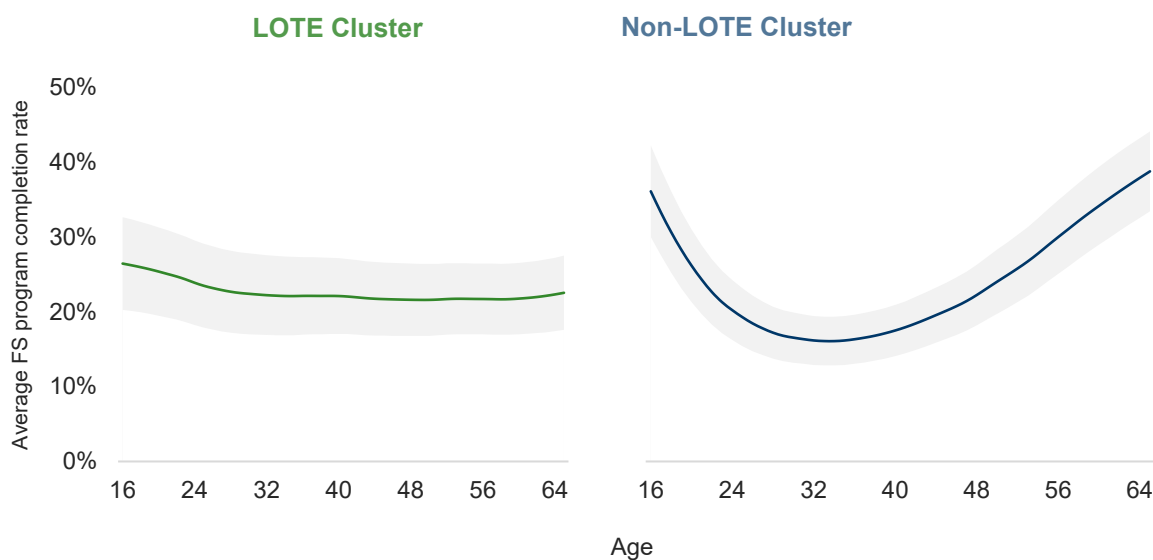
⁶ Sociodemographic identifiers of 'born in Australia' and 'language other than English' were excluded from the models as these naturally distinguished the two clusters and contained only a small number of students in each dataset. All other sociodemographic variables as listed in Appendix A were otherwise included.

Students in both clusters who identified as having a disability or were flagged as early school leavers had notably higher odds of completing a foundation skills program, while no clear evidence was found of significant differences between Indigenous and non-Indigenous students (independent of other sociodemographic and program characteristics). These findings contrast somewhat with expectations, as both disability and Indigenous status tend to be associated with a level of educational disadvantage (Ong & Circelli 2018). It is possible that foundation skills programs are on average better able to meet the needs of students in these cohorts, such that program completion outcomes are equalised or even enhanced, or that these programs hold more value for the learners in terms of their being able to access further study and employment opportunities.

The influence of age, labour force status, and socioeconomic disadvantage was mixed between each cluster

The age of the student appeared more important in the non-LOTE cluster in explaining whether a foundation skills program would be completed. The models included a polynomial term for age to capture changes in the impact of age at different stages of life (that is, non-linear effects). As these effects can be hard to interpret on the odds scale, the average model-based predictions for both LOTE and non-LOTE clusters by age are presented in figure 11. Individuals in the LOTE cluster were slightly less likely to complete after their early 20s, although the predicted completion rate is fairly consistent from this point onwards. In contrast, there was a marked U-shaped pattern in completions amongst the non-LOTE cluster. Both younger and older individuals were noticeably more likely to complete a foundation skills program compared to those in their late 20s to early 40s. Further research is required to understand why precisely why individuals in these age brackets are less likely to complete, although the demands of work and family during this time of life may partially explain the finding.

Figure 11 Average model-based foundation skills program completion rates by cluster and age



Notes: Lines represent average model-predicted foundation skills program completion rates. Shaded areas represent 95% confidence intervals. Completion rates and confidence intervals were Loess-smoothed for clarity of presentation.

Differences between the clusters were also found in terms of the influence of Socio-Economic Indexes for Areas (SEIFA), which summarises the relative socioeconomic conditions of different areas in Australia. Setting quintile 1 (most disadvantaged) as the reference level, the results suggest that non-LOTE students at any level of advantage above this have higher odds of completing their foundation skills program. On the other hand, increasing levels of advantage amongst the LOTE cluster appear to be associated with *lower* odds of completing a foundation skills program.

Similarly, LOTE students had lower odds of completing if they were employed, when compared to those unemployed or not in the labour force. For the non-LOTE cluster, however, unemployed students were either equally likely or only very marginally more likely to complete when compared to those who were employed, while individuals not in the labour force were less likely to complete.

The discrepancy in these results is somewhat challenging to explain or interpret. The overall trend appears to show that LOTE cluster students at a high level of disadvantage in terms of their socioeconomic conditions and employment status have better odds of completing a foundation skills program. In contrast, higher levels of disadvantage may impede non-LOTE students from completing relative to less disadvantaged students. The differences here merit further (ideally qualitative) research.



How foundation skills impact VET program outcomes

This section aims to identify how foundation skills programs impact on VET outcomes. The analysis moves beyond factors affecting the completion of a foundation skills program itself (as covered in the previous section) to understand how non-foundation skills VET activity may be impacted by undertaking foundation skills before and/or during the VET enrolment.

First, descriptive analyses examine the proportion of all VET students who enrol in foundation skills over the five-year research window and *when* foundation skills are delivered. Next, completion rates of VET programs are calculated in instances where the student had prior and/or concurrent foundation skills experience during the enrolment period.⁷ In the following section this set of analyses are built on to demonstrate how concurrent foundation skills may deliver personal and job-related benefits.

This section focuses on non-foundation skills VET program outcomes. From this point on, for simplicity in explanation, from this point on when VET programs are referred to, this excludes foundation skills. Throughout, the dataset used is of students followed over a five-year research window (see ‘Analysis period’ section), exclusively analysing VET program completion outcomes, along with their sociodemographic and program characteristics as at their last enrolment activity available. This means that those students who *only* took foundation skills programs during their five-year research window are excluded.

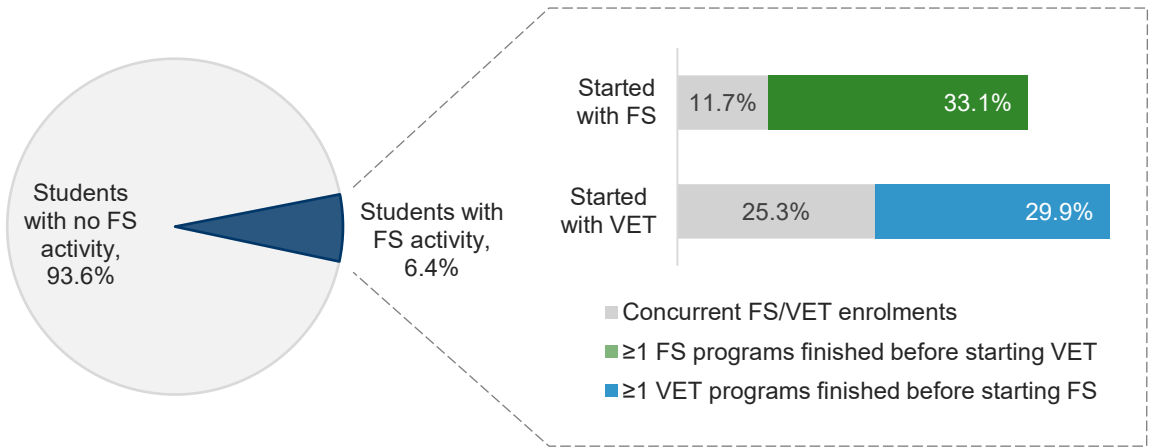
When VET students take foundation skills

The following results describe the timing of foundation skills and other VET activity at the student level. Flags were created for each VET student in the research window to identify whether the student had enrolled in foundation skills at any point. The data were then analysed to determine whether the student had started their journey with foundation skills or VET.

As shown in figure 12, the vast majority of VET students (93.6%) did not undertake any foundation skills program activity during the five-year period. Of those who did, most started with a VET program enrolment and subsequently enrolled in foundation skills either concurrently during their first period of VET program enrolment (25.3%), or after having already finished (that is, either completed or withdrawn from) a VET program previously (29.9%). Most of those who started their journey with a foundation skills program finished this before taking a VET program (33.1%), although a small proportion did begin a separate VET program while still enrolled in their commencing foundation skills program (11.7%).

⁷ The definition of VET programs here is consistent with the definition NCVER’s Total VET Activity (TVA) data scope and refers to structured study where associated subjects are grouped together as nationally recognised qualifications, courses or skill sets. Specifically, the dataset was made up of 4,382,575 non-foundation skills program enrolment records, comprising accredited courses (5.5%), accredited qualifications (2.9%), training package qualifications (85.4%), and training package skill sets (6.3%).

Figure 12 Proportion of VET students undertaking foundation skills during five-year research window, and timing of first foundation skills

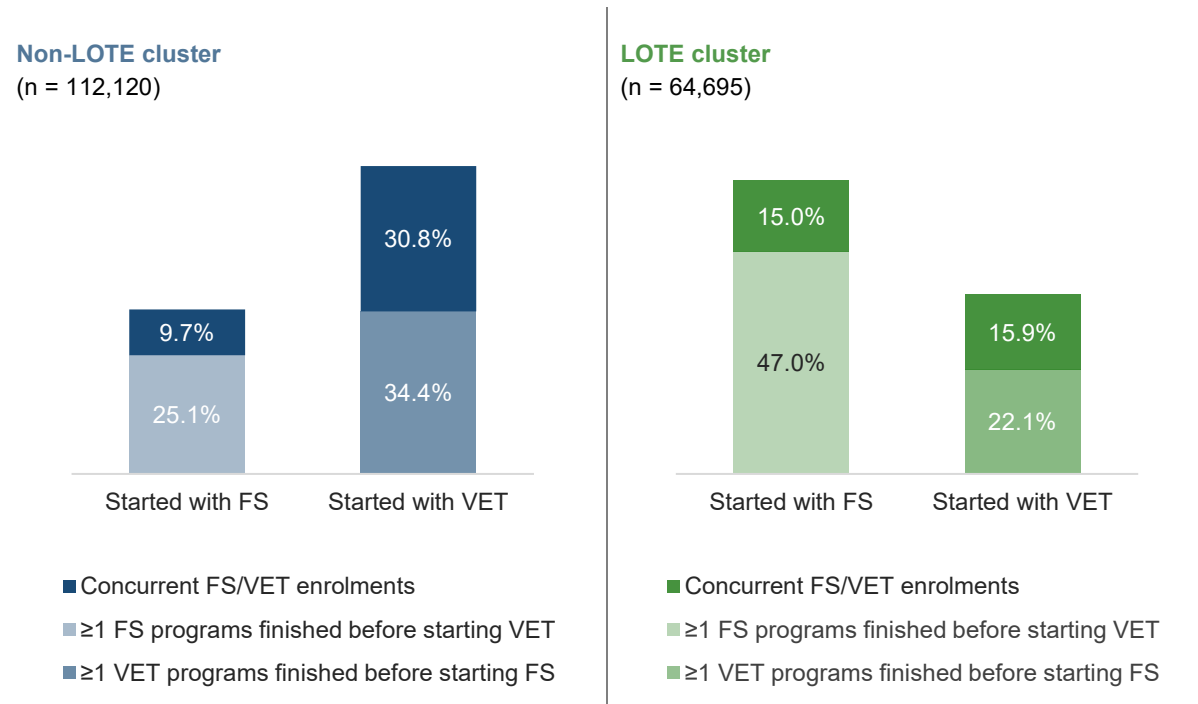


Notes: Counts at the student level. Counts limited to students with at least five years of enrolment data available between 2016 and 2023 and at least one non-foundation skills VET program enrolment. Students who started FS and VET programs on the same date counted as having started with VET.

LOTE students tend to start with foundation skills, non-LOTE students start with VET

Notable differences emerged when dividing the timing of first VET and foundation skills studies by cluster, as shown below in figure 12. Broadly, students in the LOTE cluster tended to begin their journey with foundation skills, while students in the non-LOTE cluster tended to begin their journey with VET.

Figure 13 Timing of first VET / foundation skills study during five-year research window



Notes: Counts at the student level, rounded to the nearest 5. Counts limited to students with at least five years of enrolment data available between 2016 and 2023, and at least one non-foundation skills VET program enrolment. Students who started FS and VET programs on the same date counted as having started with VET.

For the LOTE cluster, nearly half (47.0%) finished a foundation skills program before commencing their first VET program, compared with just a quarter (25.1%) in the non-LOTE cluster. In contrast, roughly two-thirds of the non-LOTE cluster already had VET activity before enrolling in foundation skills, either during their first period of VET enrolment (30.8%) or after finishing a VET program (34.4%).⁸

This pattern of results appears to reinforce the idea that each cluster takes foundation skills training for different reasons, as noted previously when observing that *LOTE cluster students tend more towards exclusively undertaking foundation skills*. Learners in the non-LOTE cluster who have enrolled in a VET course may subsequently enrol in a foundation skills program if it is identified, either by themselves or the training provider, that they require some development in their foundation skills. In contrast, those in the LOTE cluster appear more likely to have opted to take preparatory foundation skills study ahead of starting further VET.

Completion rates by foundation skills experience

Influences of prior and concurrent foundation skills program delivery

Next, the program enrolment data was assessed to determine whether undertaking foundation skills influenced VET program completion outcomes. To do this, each enrolment was categorised into one of four categories, as illustrated in table 6. These categories were defined by whether the student was taking foundation skills concurrently with the VET program (no FS, +FS) and whether the student had any foundation skills experience at the outset of the VET program (none, some).

Table 6 VET program categories by concurrent and prior foundation skills experience

Was there concurrent FS study during the course of VET program?	No FS		+FS	
	No FS undertaken during the VET program		Took FS concurrently with the VET program	
Did the student have any FS experience as at start of the VET program?	No prior FS experience	Some prior FS experience	No prior FS experience	Some prior FS experience
	No FS to date		At least some FS experience by the end of the VET program	

This approach was adopted was to determine whether a history of foundation skills contributed to better outcomes in subsequent program enrolments and whether receiving foundation skills support alongside a VET program supported the successful completion of the VET program.

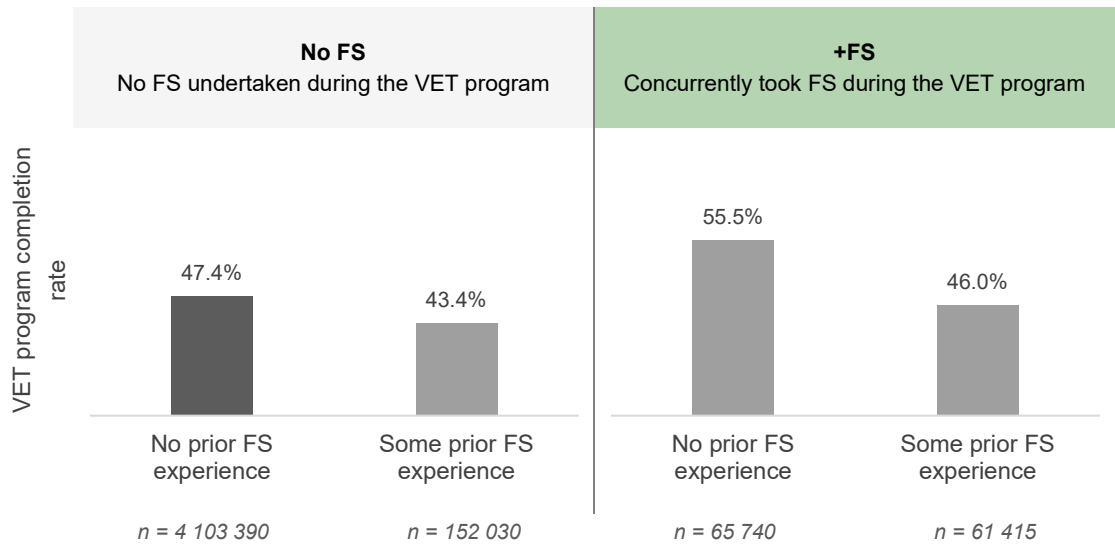
Foundation skills studies deliver the best outcomes when delivered concurrently alongside a VET program enrolment

The average VET completion rates were calculated for each of the four categories. The results are presented in figure 14. The overall completion rate of VET programs where the student had no prior or

8 NCVER’s previous research report *Journeying through VET* (Circelli et al. 2022) identified this same pattern but in a different way. There students were segmented into four groups, based on the timing of their foundation skills and VET activity between 2016 and 2019. Over half of the students in the ‘foundation skills only’ (65.4%, p.21) and ‘foundation skills followed by other VET’ (52.1%, p.22) student groups spoke a language other than English at home. In contrast, students taking ‘foundation skills and other VET concurrently’ or ‘other VET followed by foundation skills’ were much more likely to speak English at home (24.4% and 20.3% respectively, pp.22–3). The types of programs in which each of these previous student groups enrolled further affirmed this result (see table 5, Circelli et al. 2022) and resembled the findings of the current research, as shown in figure 5.

additional foundation skills experience during the enrolment (47.4%) roughly represents the sector average during the research window, as discussed previously. This category has a much larger sample size, as most students did not enrol in any foundation skills before or during a given VET enrolment.

Figure 14 VET program completion rates by timing of foundation skills program delivery



Notes: Completion rates at the program enrolment level, rounded to the nearest 5. Limited to students with at least five years of enrolment data available between 2016 and 2023, and programs with known outcomes (i.e. not still in progress). Completion rates of FS programs themselves are not included in this analysis. FS experience counted as having enrolled in one or more FS subjects at the time of commencing the VET program enrolment.

The completion rate for students with some prior foundation skills experience but no additional foundation skills studied during the VET program was marginally lower than this average. One possible explanation for this finding is that prior foundation skills experience captures students who had significant challenges or particularly low proficiency in areas such as language, literacy, numeracy and digital skills (noting that NCVER does not have actual measures of this in the data⁹). If the prior foundation skills experience cannot be applied in their subsequent VET studies and the student receives no concurrent foundation skills to support their subsequent VET study, then this group might be at a disadvantage in completing. There is some evidence that students find bridging courses, conducted to address LLN challenges before undertaking a subsequent VET qualification, can be limited in how well they are contextualised to the VET qualification the student plans to undertake, and hence it can be difficult for the student to apply the learnings (Andrahannadi & Griffin 2025).

The strongest results were found for students with no prior foundation skills experience but who concurrently took foundation skills *during* their VET program. This group had a completion rate of 55.5% overall, suggesting that those who take foundation skills alongside their VET studies bolster their skills and abilities and have a higher likelihood of completing the VET program overall, relative to the VET sector average.

9 At the time of writing, no standardised assessment of foundation skills ability is widely collected or available for use in the Australian VET system. Jobs and Skills Australia is currently devising a national survey of adult literacy and numeracy skills, based in part on existing OECD assessment tools, and conducting an administrative data project to collate data from different measures of foundation skills. Future research should ideally incorporate a standardised assessment of LLND skills, if possible.

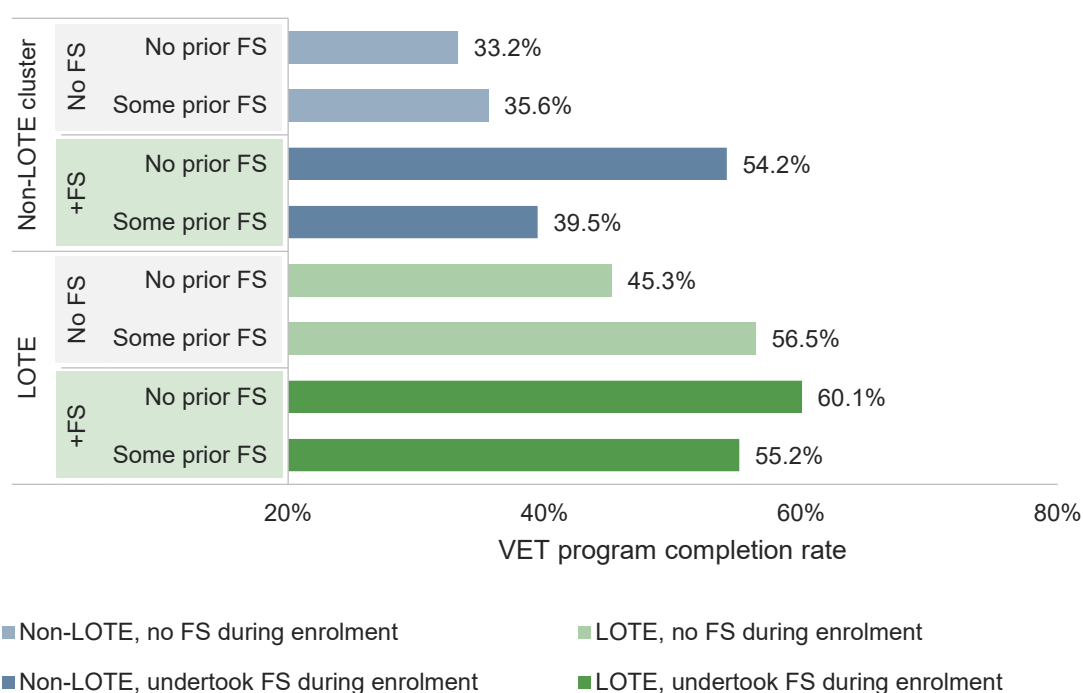
Where students had a prior experience in foundation skills and concurrently took additional foundation skills studies during their VET enrolment, the completion rate was comparable to the VET sector average. This suggests that a prior history of foundation skills may be indirectly capturing some level of disadvantage, but this disadvantage appears mitigated by taking additional foundation skills for support during a VET program. In sum, it would appear that foundation skills deliver the best benefits in terms of VET completions when delivered concurrently.

Any foundation skills experience indicated higher VET completion rates amongst the LOTE cluster

To understand whether this pattern of results held across different foundation skills student segments, the analysis was re-run, splitting by cluster. The results are presented in figure 15. Once again, in both clusters, the highest completion rates were found when students took foundation skills for the first time concurrently with their VET studies.

The interpretation of one of these categories now changes slightly and is worth highlighting. Because students were only identified as belonging to a cluster where they enrolled in foundation skills at some point during the research window, the category ‘No FS/No prior FS’ represents the completion rate of students who have not as yet enrolled in a foundation skills program, but will go on to in the future. Students in this category are particularly interesting because their outcomes give some indication of the performance of foundation skills students had they not taken foundation skills study.

Figure 15 VET program completion rates by cluster and timing of foundation skills program delivery



Notes: Completion rates at the program enrolment level. Limited to students with at least five years of enrolment data available between 2016 and 2023, and programs with known outcomes (i.e. not still in progress). Completion rates of FS programs themselves are not included in this analysis. FS experience counted as having enrolled in one or more FS subjects at the time of commencing the VET program enrolment.

As can be seen, VET completion rates in both clusters are lowest for foundation skills students *before they have taken any foundation skills*. The completion rate of VET programs in the LOTE cluster before taking any foundation skills was comparable to the average within the VET sector but rose above this to around 55–60% with any foundation experience (either prior, concurrent or both). In other words, LOTE students who had taken foundation skills had higher VET completion rates on average, regardless of when foundation skills were taken.

In contrast, for the non-LOTE cluster, VET program completion rates were well below the VET sector average *except* when foundation skills were undertaken for the first time during their VET enrolment. This set of results may be impacted by a degree of churn amongst this cohort. As shown previously, most non-LOTE students undertook more than one VET program during the research window, with around one in three (32.3%) enrolling in three or more programs. It is possible that there was a higher proportion of students in this group who had repeatedly enrolled in and withdrawn from (or failed) various VET prior programs.

It is worth noting that all the results given above are based on descriptive statistics and with simple comparisons made against the average range for the VET sector, or between different timings of foundation skills delivery within a cluster. These are easy to interpret but may provide an inaccurate impression of the effects of foundation skills, because the type of students who enrol in foundation skills may be systematically different from those who do not. To address this, propensity score and regression adjustment methodologies were used to create reasonable comparison groups.

Propensity score estimates of concurrent foundation skills

The next analysis sought to estimate the beneficial effect of taking foundation skills on VET program completions, independent of other factors. To assess the most clear and immediate effects of foundation skills learning experience, the analysis focused on comparing outcomes of VET programs delivered with and without concurrent foundation skills support.¹⁰

Interpreting the results

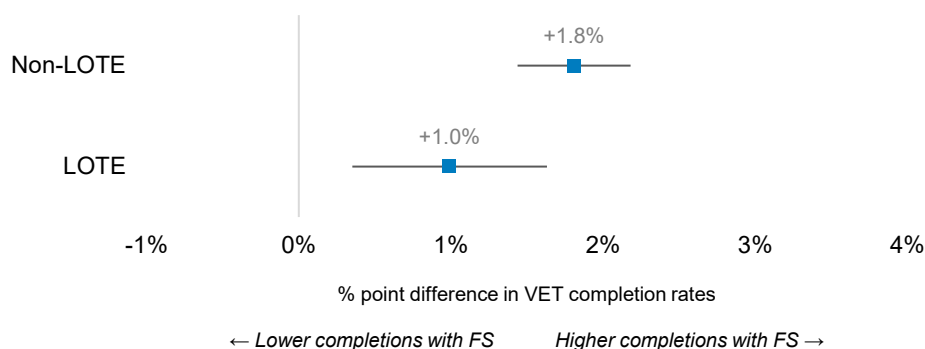
In the section below, the effect of undertaking a foundation skills program alongside a VET program is presented in terms of a percentage-point difference in completion rates. This shows the estimated differences in completing a VET program, *holding all other factors constant*. All effects reported statistically control for other program and sociodemographic characteristics. This contrasts with the previous section, which presents unadjusted completion rates split by groups.

Propensity score modelling and regression adjustment were used to create matched sets of VET enrolment records for students who *did not* undertake foundation skills concurrently but who were virtually identical to those who did on a number of characteristics (e.g. gender, disability status, VET program field of education etc). The difference between the hypothetical completion rates without foundation skills and actual completion rates with these skills gives an average treatment effect on the treated (ATT). Further technical details on this process are presented in Appendix E – Propensity score methodology.

¹⁰ Assessing the outcomes of *prior* foundation skills on subsequent VET enrolments is highly challenging and therefore not directly evaluated here. For example, a student's prior foundation skills activity may have been taken anywhere from days to years prior to their taking up another VET program. This creates potentially serious issues in terms of differences in prior and subsequent learning contexts, a lack of practice and memory decay in between, difficulties isolating the impact of foundation skills from other personal and educational factors experienced in the meantime, and more issues.

Results of the modelling are presented in figure 16. As can be seen, both cohorts significantly benefited from undertaking foundation skills alongside their VET programs. Non-LOTE learners on average were more likely to complete their VET program by 1.8 percentage points when this VET program was delivered alongside foundation skills. LOTE learners also benefited, albeit to a lesser degree, being 1.0 percentage points more likely to complete when the VET program was delivered concurrently with foundation skills.

Figure 16 Average treatment effect on the treated (ATT) for VET program completions when delivered with concurrent foundation skills



Notes: Results represent regression-based marginal effects, controlling for a range of sociodemographic and program characteristics. Significant differences between treated and control groups are shown in blue (if positive) or red (if negative).

Influences of concurrent foundation skills subject activity

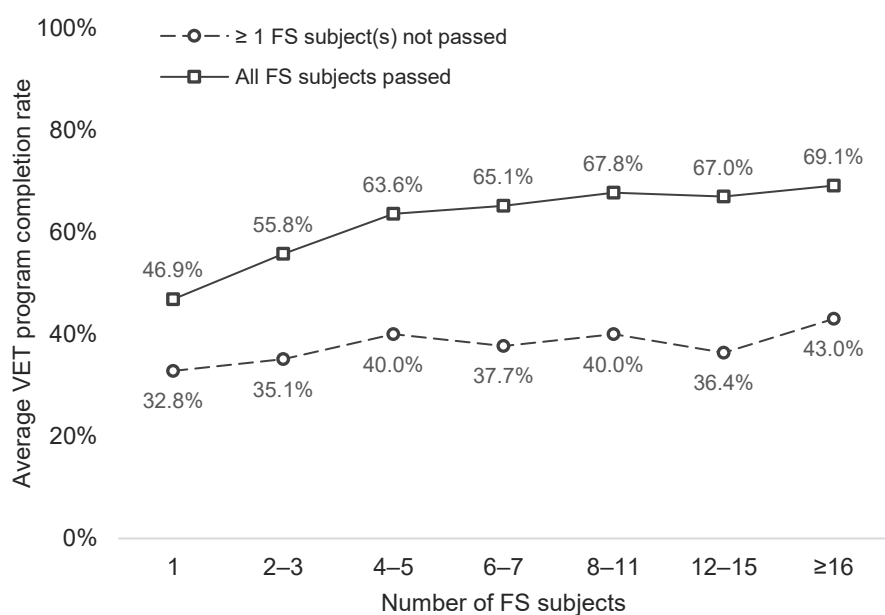
Having identified that foundation skills enrolments delivered *concurrently* appear to increase the completion rate of VET programs, the next analysis sought to understand whether the *number* of foundation skills subjects successfully passed had a meaningful influence on VET completions.

The number of foundation skills subjects passed or not *during* each VET program were counted, regardless of whether the foundation skills program itself was completed or not. Following the work of Wibrow, Hall and Griffin (2024) and Hall (2024), students were divided into those who did and those who did not successfully pass all concurrent foundation skills subjects in which they were enrolled before the VET program finished. For more details on this approach, see the section, ‘Quantifying outcomes of foundation skills subject activities’.

Students who pass all concurrent foundation skills subjects are more likely to complete their VET program

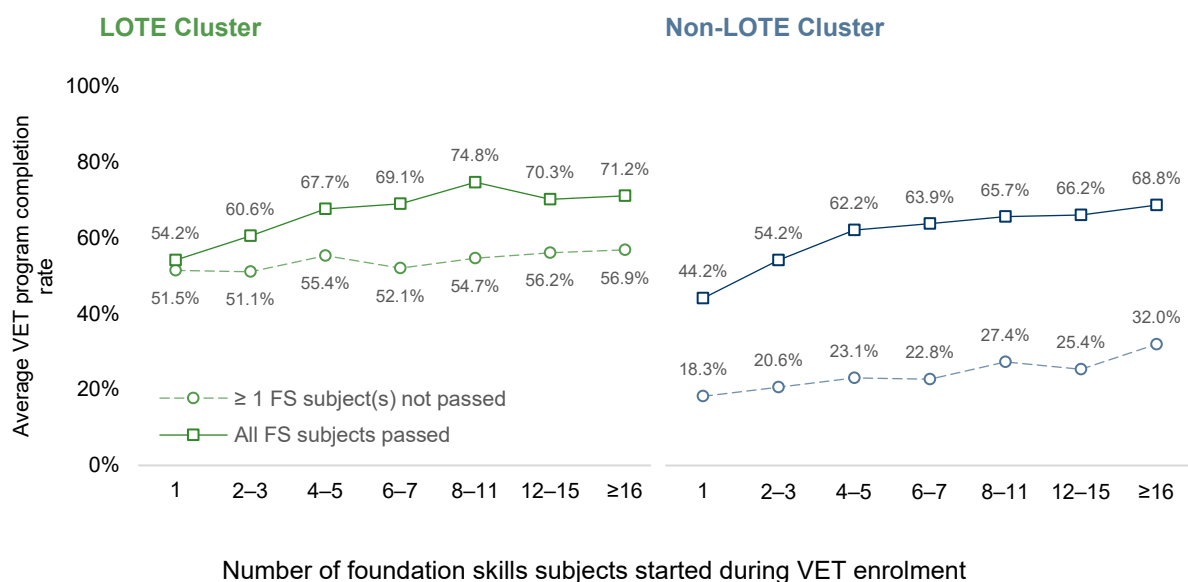
As shown in figure 17, students who successfully passed *all* the concurrent foundation skills subjects in which they were enrolled were much more likely to complete their concurrent VET program than those who did not pass one or more of their subjects. Additionally, there was a cumulative effect of the amount of foundation skills activity undertaken, whereby students who passed more foundation skills subjects were increasingly likely to pass their concurrent VET program. In other words, each additional foundation skills subject passed appeared to provide an incremental benefit in terms of completing a concurrent VET program.

Figure 17 Average VET program completion by number of concurrent foundation skills subjects completed



Notes: Completion rates at the program enrolment level. Limited to students with at least five years of enrolment data available between 2016 and 2023, and programs with known outcomes (i.e. not still in progress). Completion rates of foundation skills programs themselves are not included in this analysis.

Figure 18 Average VET program completion by cluster and number of concurrent foundation skills subjects completed



Notes: Completion rates at the program enrolment level. Limited to students with at least five years of enrolment data available between 2016 and 2023, and programs with known outcomes (i.e. not still in progress). Completion rates of foundation skills programs themselves are not included in this analysis.

Non-LOTE students who do not pass one or more concurrent foundation skills subject/s are unlikely to complete their VET program

Once again, dividing these results by the cluster is illuminating, as illustrated in figure 18. While the overall trends are similar in both clusters, the effect is most pronounced for the non-LOTE cluster.

Non-LOTE students were unlikely to successfully pass a VET program if they did not pass at least one of their concurrent foundation skills subjects. Conversely, non-LOTE students who *did* complete all of their foundation skills subjects performed at or above the VET sector completion rate average of roughly 45–50%. LOTE students on the other hand maintained a relatively a good chance of completing a VET program even if one or more of their foundation skills subjects had not been passed (> 50% at all points). Nonetheless, passing all foundation skills subjects still conferred a clear benefit over and above this for the LOTE cluster.



Impacts of foundation skills on employment and further study outcomes

In the final set of analyses, the Student Outcomes Survey (SOS) data were leveraged to understand whether undertaking foundation skills alongside a VET program provided job-related and personal benefits over and above those of taking a VET program alone. The analysis moves beyond assessing whether undertaking foundation skills simultaneously provides benefits in terms of completing the VET program.

The focus in this section is on assessing the self-reported outcomes of VET programs from students who combined their study with foundation skills. The results are therefore indirect measures of the benefits of foundation skills, rather than a direct examination of the stated outcomes of the foundation skills programs themselves.

Key points

- Concurrent foundation skills study alongside a VET program leads to higher job attainment in both clusters
- Non-LOTE students were more likely to make new friends, improve communication skills, and gain confidence
- Students taking concurrent foundation skills may be less likely to improve their status at work

These indirect benefits on VET program outcomes were analysed for two key reasons. Firstly, NCVER's prior research report *Journeying through VET: a case study of foundation skills learners* (Circelli et al. 2022) provided a comprehensive assessment of dozens of student outcomes among foundation skills programs and compared these to responses from similar students completing non-foundation skills VET programs using the 2019 SOS data. The intent here was not to repeat this analysis. Secondly, since the analyses in the previous section indicated that concurrent foundation skills study can enhance VET completions, the analyses in this section aim to determine whether there are additional personal and job-related benefits beyond this.

Modelling benefits of VET study with and without foundation skills support

Methodology

This set of analyses sought to estimate the job-related and personal benefits resulting from a VET program taken alongside foundation skills, independent of other factors. Once again, the analyses focused on comparing outcomes of VET programs delivered with and without concurrent foundation skills support.

To conduct these analyses, the Master Student Longitudinal Construct (MSLC) and 2017–23 SOS datasets were linked. To maximise sample sizes, data from across all available SOS years for VET completers since 2016 were used. As the sampling frame of the SOS has changed somewhat over time for all segments except for qualification completers (that is, students who had completed a training package qualification or an accredited qualification), the analyses were restricted to this group exclusively. Each job-related and personal benefit of undertaking the VET program reported in the SOS response was defined as a binary 'yes' (received the benefit) or 'no' (did not receive the benefit) response.

Interpreting the results

In the section below, the effect of undertaking a foundation skills program alongside a VET program is presented in terms of a percentage-point difference in job-related or personal benefits between VET programs taken with versus without foundation skills. Positive values indicate higher reported benefits for VET programs taken with foundation skills, with significant differences highlighted in blue. Negative values indicate the opposite result, highlighted in red.

All effects reported statistically control for other program and sociodemographic characteristics. Once again, propensity score modelling and regression adjustment were used to create matched sets of VET enrolment records on a number of characteristics. The key variable for matching was whether any additional foundation skills experience was attained by the student during the VET program enrolment, defined as enrolling in at least one foundation skills subject, regardless of whether this was passed.

Further technical details on this process are presented in Appendix E – Propensity score methodology.

Results

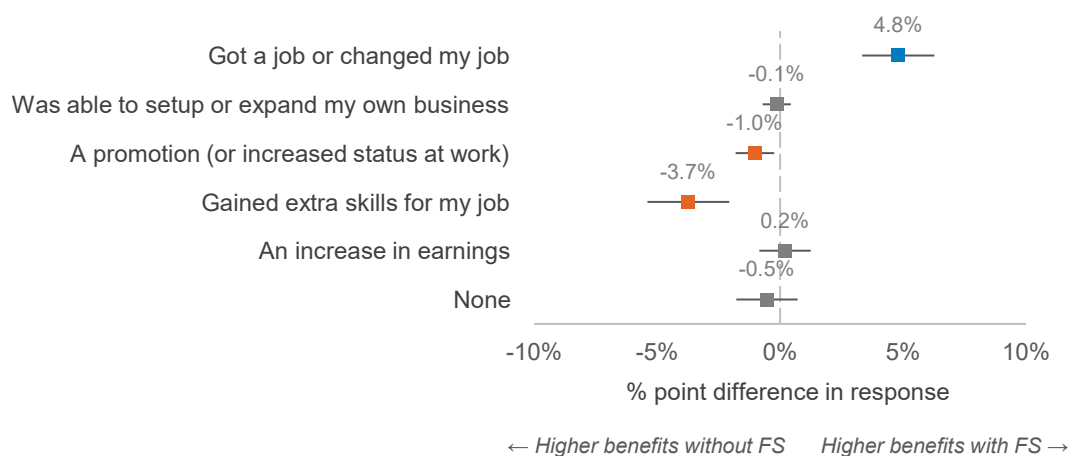
Job-related benefits of concurrent foundation skills on VET programs

The results of the job-related benefit analyses are presented in figure 19. Amongst the non-LOTE cluster, concurrent foundation skills study alongside a VET program resulted in a higher likelihood of gaining or changing a job (+4.8 percentage-point increase). Somewhat counterintuitively, however, non-LOTE students undertaking foundation skills during their VET program were less likely to report gaining extra skills for their job (-3.7%) or gaining a promotion (-1.0%), relative to those who did not. No significant difference was found for any other job-related benefits of concurrently taking foundation skills within this cluster.

Figure 19 Differences in reported job-related benefits between matched students with and without concurrent foundation skills support

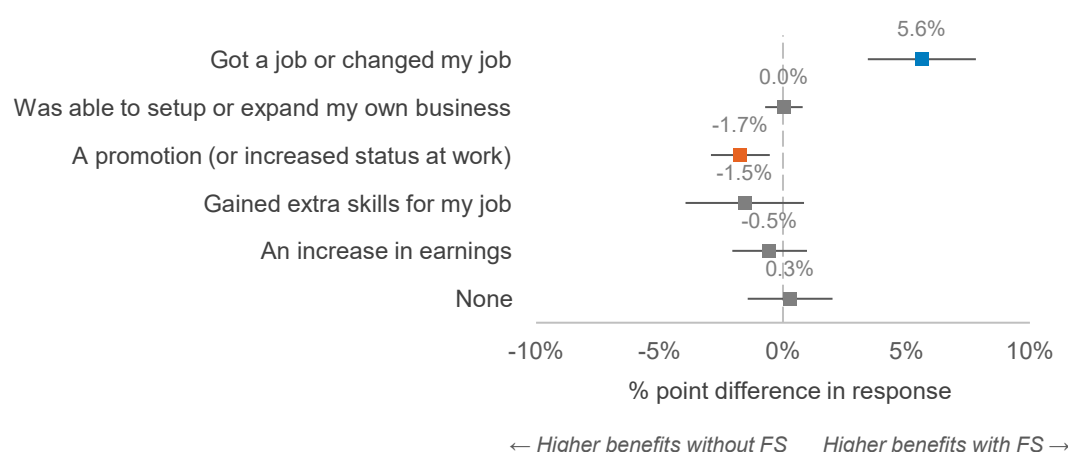
Non-LOTE cluster

(n = 7 785 treatment)



LOTE cluster

(n = 4 600 treatment)



Notes: Positive values indicate a higher proportion of the benefit was received for VET programs combined with foundation skills study; negative values indicate higher benefits without foundation skills. Results represent regression-based marginal effects, controlling for a range of sociodemographic and program characteristics. Significant differences between treated and control groups are shown in blue (if positive) or red (if negative).

Amongst the LOTE cluster, the direction of most of the effects was similar to that of the non-LOTE cluster. Concurrent foundation skills study for LOTE students appears to result in a higher likelihood of gaining or changing a job (+5.6 percentage-point increase). Likewise, LOTE students were somewhat less likely to report receiving a promotion or increased status at work (-1.7%). No other effects showed significant differences. It must be stressed that non-significant results do not indicate that foundation skills had a negative impact per se, but rather that the perceived job-related benefits of a VET program were not notably different whether they took foundation skills alongside this or not.

Personal benefits of concurrent foundation skills on VET programs

The results of the personal benefit analyses are presented in figure 20. Once again, each outcome is presented in terms of a percentage-point difference, whereby positive values indicate higher benefits for VET programs taken with foundation skills.

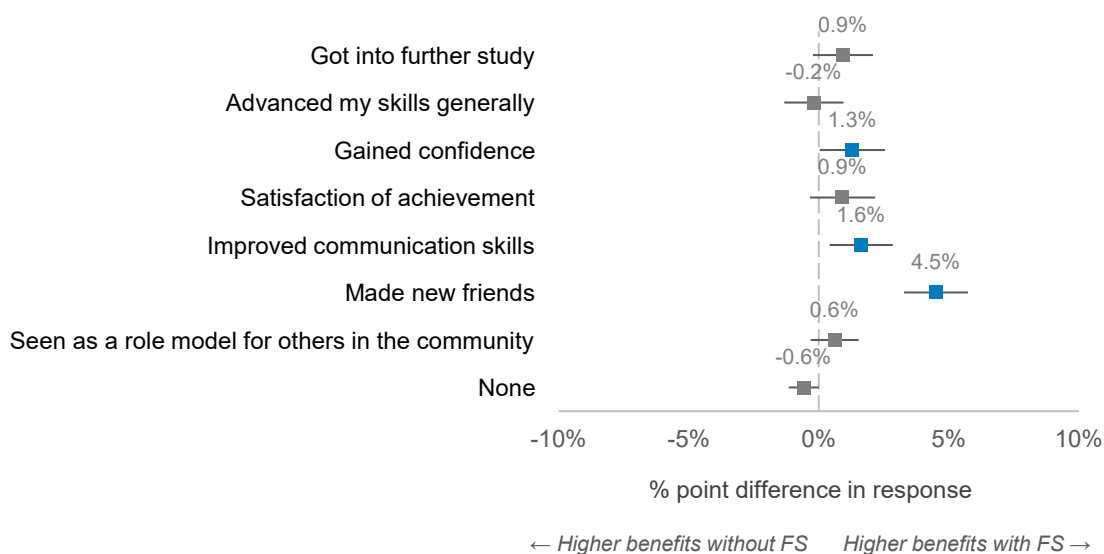
Amongst the non-LOTE cluster, almost all forms of personal benefit were higher for students who undertook foundation skills alongside their VET program, with significant differences in terms of having made new friends (+4.5% percentage-point increase), improved communication skills (+1.6%), and gained confidence (+1.3). There was some indication that foundation skills students were more likely to feel satisfied with their achievement (+0.9%) and to get into further study (+0.9%), although neither was significant. This pattern of results suggests that undertaking foundation skills may have more intangible social benefits for the non-LOTE students, which are not captured by completion rates or other economic outcomes (O'Dwyer & Mihelic 2021).

For the LOTE cluster, the pattern of results is much more ambiguous. Although LOTE students *may* also be somewhat more likely to make new friends (+1.5% percentage-point increase) and get into further study (+1.2%), there were no positive significant differences in terms of personal benefits for this cluster. Instead, students had significantly lower satisfaction of achievement (-1.8%) and advancement of skills generally (-2.5%) in the presence of a foundation skills enrolment. For the LOTE cluster students, the personal benefits of taking a foundation skills alongside a VET program may be more mixed and limited when compared to the non-LOTE cluster.

Figure 20 Differences in reported personal benefits between matched students with and without concurrent foundation skills support

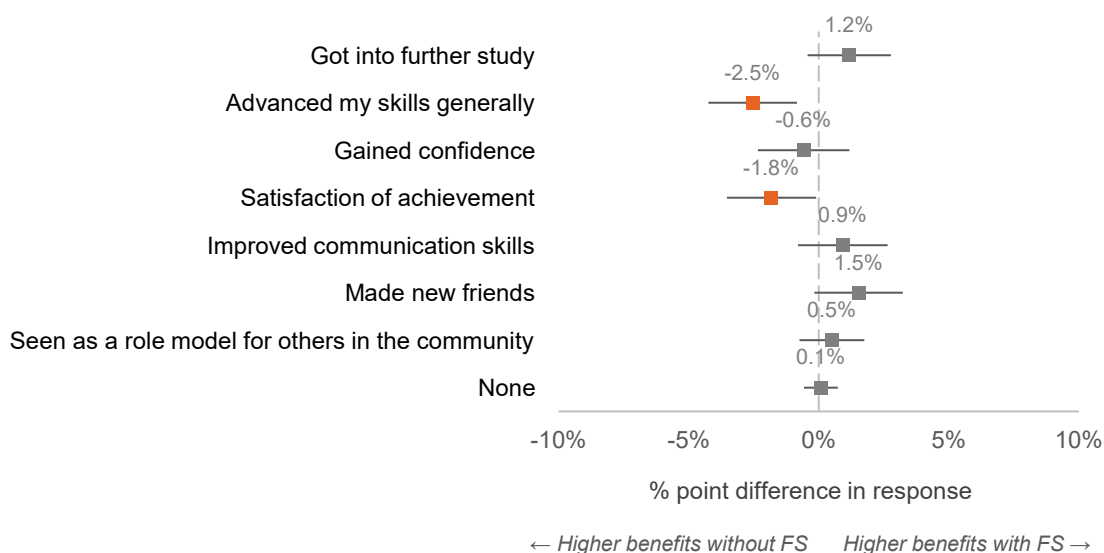
Non-LOTE cluster

(n = 13 370 treatment)



LOTE cluster

(n = 7 785 treatment)



Notes: Positive values indicate a higher proportion of the benefit was received for VET programs combined with foundation skills study; negative values indicate higher benefits without foundation skills. Results represent regression-based marginal effects, controlling for a range of sociodemographic and program characteristics. Significant differences between treated and control groups are shown in blue (if positive) or red (if negative).



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Appendix A – Research scope

This research analysed *nationally recognised* foundation skills programs. After consultation with state and Commonwealth stakeholders, NCVER defined a list of programs in scope, which are presented below. Non-nationally recognised foundation skills study was not considered as part of this research project.

This focus is not intended to diminish the importance of non-nationally recognised foundation skills training, which makes up a substantial share of foundation skills delivery. NCVER collects non-nationally recognised training activity data through the government-funded students and courses collections; however, the limitations of the non-nationally recognised data include that it cannot be validated against the AVETMISS statistical standard or reported against any known classification systems, such as level or field of education. Moreover, a comprehensive audit of non-nationally recognised foundation skills programs has not to NCVER's knowledge ever been commissioned or completed, and identifying, for example, all relevant RTO-specific foundation skills programs was not feasible for this project.

Scoping parameters

To limit analyses to relevant foundation skills activity, the following scoping parameters were applied, as described in table A1. For consistency with prior NCVER research, this scope is virtually identical to that applied in the previous report *Journeying through VET: a case study of foundation skills learners* (Circelli et al. 2022). As the focus of this work was on domestic VET students, activity undertaken by international students or as part of secondary school was excluded. Consistent with prior work, unique student identifiers (USIs) associated with enrolments in more than 10 unique programs were excluded as potential outliers.

Table A1 In-scope foundation skills programs

Scoping parameter	Description
Period of analysis	2016–23 Note that the period of analysis does not represent a definitive commencing/completion period but a window of time. See the section 'Analysis period' for more details.
Unit of analysis	Students with a valid unique student identifier and with at least one nationally recognised foundation skills (LLND/employment skills) program enrolment during 2016–23. USIs associated with enrolments in more than 10 unique programs during the period of analysis were excluded.
Qualification level	Nationally recognised foundation skills programs up to certificate II with the exception of higher-level courses that are dedicated LLND programs, such as Certificate III/IV in Spoken and Written English; Certificate III in General Education for Adults; Certificate III in EAL (English as an Additional Language). For students in scope who also enrol in other (non-foundation skills) VET programs during the period of analysis, these programs may be at any qualification level.
Excluding secondary school students	Enrolments excluded based on the following criteria: <ul style="list-style-type: none">▪ Data submitter is a board of study, or▪ Training organisation type is a school, or▪ Student is still enrolled in secondary school
Residency criterion	Domestic students only; international fee-paying student data excluded.

Foundation skills programs in scope for research

We revised the list of programs in scope for this research from that of the previous NCVER report *Journeying through VET* report. The final list of in-scope foundation skills programs used for this project is presented in table A2.

As programs at the certificate II level or below are generally considered preparatory or foundational, no additional programs higher than this were considered for inclusion (outside those included in the previous research report). A list of updated and/or new foundation programs was presented to the Project Advisory Committee (PAC) for review and approval. The PAC included stakeholders from the Western Australian Department of Training and Workforce Development, New South Wales Department of Education, Victorian Department of Jobs, skills, Industry and Regions, Queensland Department of Youth Justice, Employment, Small Business and Training, and the Australian Government Department of Employment and Workplace Relations.

Table A2 In-scope foundation skills programs

Program ID	Program Name	FOE
10075NAT	Course in Workskills for Life	1205
10076NAT	Certificate II in Foundations for Vocational and Further Study	1201
10077NAT	Certificate II in Skills for Work and Study	1201
10078NAT	Certificate I in Basic English Language Skills	1201
10079NAT	Certificate II in Foundation English Language Skills	1201
10080NAT	Certificate II in Routine English Language Skills	1201
10087NAT	Certificate I in Access to Work and Training (Introductory)	1205
10088NAT	Certificate I in Access to Work and Training	1205
10089NAT	Certificate II in Skills for Work and Training	1205
10090NAT	Certificate II in Skills for Work and Training in the Community Sector	1205
10093NAT	Course in Vocational and Community Engagement	1205
10244NAT	Certificate I in Aboriginal and Torres Strait Islander Language and Knowledge Work	1205
10253NAT	Certificate II in Women's Education	1201
10266NAT	Certificate II in Education and Skills Development	1201
10361NAT	Course in Preliminary Spoken and Written English	1201
10362NAT	Certificate I in Spoken and Written English	1201
10363NAT	Certificate II in Spoken and Written English	1201
10364NAT	Certificate III in Spoken and Written English	1201
10365NAT	Certificate IV in Spoken and Written English – Further Studies	1201
10366NAT	Certificate IV in Spoken and Written English – Employment	1201
10388NAT	Certificate I in Indigenous Driver Education	1201
10563NAT	Certificate I in Work and Life Skills	1201
10580NAT	Certificate II in Study Skills	1201
10591NAT	Certificate II in Further Study Skills	1201
10700NAT	Certificate II in Employability (Becoming a Worker)	1201
10725NAT	Course in Preliminary Spoken and Written English	1201
10726NAT	Course in Spoken and Written English for Job Seeking	1201
10727NAT	Certificate I in Spoken and Written English	1201
10728NAT	Certificate II in Spoken and Written English	1201
10729NAT	Certificate III in Spoken and Written English	1201
10730NAT	Certificate IV in Spoken and Written English for Further Study	1201
10748NAT	Course in Foundation Skills for Learner Drivers	1201
10853NAT	Certificate I in English Proficiency	1201
10854NAT	Certificate II in English Proficiency	1201
10855NAT	Certificate III in English Proficiency	1201

Program ID	Program Name	FOE
10959NAT	Certificate I in Life Skills	1201
10973NAT	Course in Skills for Further Learning and Engagement	1201
10981NAT	Certificate I in Access Technology	1205
10982NAT	Certificate I in Fundamental English for Speakers of Other Languages	0915
10984NAT	Certificate II in Basic English for Speakers of Other Languages	0915
10985NAT	Certificate II in Routine English for Speakers of Other Languages	0915
10986NAT	Certificate II in Access Technology	1205
11005NAT	Certificate I in Preparation for Work and Training	1201
11009NAT	Certificate I in Access to Work and Training	1201
11039NAT	Certificate II in Career Preparation	1201
11041NAT	Certificate II in Further Study Skills	1201
11137NAT	Course in Skills to Access Learning Pathways	1201
11138NAT	Course in Skills to Develop Learning Pathways	1203
11139NAT	Certificate I in Skills for Education and Training Pathways	1201
11140NAT	Certificate II in Skills for Education Training and Employment Pathways	1201
11200NAT	Certificate II in Vocational Preparation for Women	1201
21250VIC	Certificate I in General Education for Adults	1201
21771VIC	Certificate I in General Education for Adults (Introductory)	1201
21772VIC	Certificate I in General Education for Adults	1201
21773VIC	Certificate II in General Education for Adults	1201
21774VIC	Certificate III in General Education for Adults	1201
21938VIC	Course in ESL	1201
22012VIC	Certificate I in Vocational Preparation	1205
22128VIC	Certificate I in Work Education	1205
22129VIC	Certificate I in Transition Education	1205
22207VIC	Certificate I in Developing Independence	1201
22471VIC	Course in Initial General Education for Adults	1201
22472VIC	Certificate I in General Education for Adults	1201
22473VIC	Certificate II in General Education for Adults	1201
22474VIC	Certificate III in General Education for Adults	1201
22475VIC	Certificate I in General Education for Adults (Introductory)	1201
22476VIC	Certificate I in General Education for Adults (Introductory)	1201
22481VIC	Certificate II in Work Education	1205
22482VIC	Course in Initial EAL	0915
22483VIC	Course in EAL	1201
22484VIC	Certificate I in EAL (Access)	1201
22485VIC	Certificate II in EAL (Access)	1201
22486VIC	Certificate III in EAL (Access)	1201
22487VIC	Certificate IV in EAL (Access)	1201
22488VIC	Certificate II in EAL (Employment)	1201
22489VIC	Certificate III in EAL (Employment)	1201
22490VIC	Certificate IV in EAL (Employment / Professional)	1201
22491VIC	Certificate III in EAL (Further Study)	1201
22492VIC	Certificate IV in EAL (Further Study)	1201
22523VIC	Certificate I in Employment Pathways	1205
22554VIC	Course in Initial Adult Literacy and Numeracy	1201
22555VIC	Certificate I in Initial Adult Literacy and Numeracy	1201
22566VIC	Certificate I in Work Education	1205
22567VIC	Certificate I in Transition Education	1201
22604VIC	Certificate I in Mumgu-dhal tyama-tiyt	1201
22605VIC	Certificate II in Mumgu-dhal tyama-tiyt	1201
22606VIC	Certificate III in Mumgu-dhal tyama-tiyt community, connection and pathways	1201
22615VIC	Certificate I in Developing Independence	1201

Program ID	Program Name	FOE
30943QLD	Certificate I in Communication (Language Literacy and Numeracy)	1201
30951QLD	Certificate I in English Communication Skills	1201
30958QLD	Course in Independent Living and Work Skills	1205
39279QLD	Course in Core Skills for Employment and Training – Communication (Preliminary)	1201
39280QLD	Course in Core Skills for Employment and Training – Communication (Basic)	1201
39281QLD	Course in Core Skills for Employment and Training – Communication (Intermediate)	1201
39282QLD	Certificate I in Core Skills for Employment and Training – Communication	1201
39283QLD	Certificate II in Core Skills for Employment and Training – Communication	1201
39285QLD	Course in Core Skills for Employment and Training Numeracy (Preliminary)	1201
39286QLD	Course in Core Skills for Employment and Training – Numeracy (Basic)	1201
39287QLD	Course in Core Skills for Employment and Training Numeracy (Intermediate)	1201
39288QLD	Certificate I in Core Skills for Employment and Training – Numeracy	1201
39289QLD	Certificate II in Core Skills for Employment and Training – Numeracy	1201
40620SA	Certificate I in English Proficiency	1201
40622SA	Certificate III in English Proficiency	1201
52379	Course in Underpinning Skills for Industry Qualifications (USIQ)	0799
52426WA	Certificate I in Entry to General Education	0799
52524WA	Certificate I in Industrial Skills (Entry Level Training)	1205
52526WA	Certificate I in Wider Opportunities for Work (WOW)	1205
52529WA	Certificate I in Gaining Access to Training and Employment (GATE)	1205
52560WA	Certificate I in Leadership Development	1201
52562WA	Certificate II in Leadership Development	1201
52626WA	Course in Applied Vocational Study Skills (CAVSS)	0799
52665WA	Course in Underpinning Skills for Industry Qualifications	0703
52696WA	Certificate I in Entry to General Education (EGE)	0799
52770WA	Certificate I in Wider Opportunities for Work (WOW)	1205
52823WA	Course in Applied Vocational Study Skills (CAVSS)	1201
52832WA	Course in Underpinning Skills for Industry Qualifications	0703
52837WA	Certificate I in Entry to General Education (EGE)	0799
52860WA	Certificate I in Industrial Skills (Entry Level Training)	1205
52875WA	Certificate I in Gaining Access to Training and Employment (GATE)	1205
52876WA	Course in Gaining Access to Training and Employment (GATE) (Introductory)	1205
52877WA	Certificate I in New Opportunities for Women (NOW)	1205
52878WA	Certificate I in Leadership	1205
52879WA	Certificate II in Leadership	1205
91345NSW	Certificate II in General And Vocational Education (Cave)	1201
91421NSW	Certificate I in Spoken and Written English	1201
91549NSW	Certificate I in Employability: Becoming a Worker	1201
CHC10108	Certificate I in Work Preparation (Community services)	1205
FSK10119	Certificate I in Access to Vocational Pathways	1201
FSK10219	Certificate I in Skills for Vocational Pathways	1201
FSK20119	Certificate II in Skills for Work and Vocational Pathways	1201
ICT20120	Certificate II in Applied Digital Technologies	0203

Student sociodemographics

Throughout many analyses in this project the following sociodemographic variables were included:

- Gender
- Age
- Indigenous status
- Disability status
- Remoteness
- SEIFA
- Language other than English
- Labour force status
- Highest prior education
- Born in Australia
- Ever early school leaver

Appendix B – Longitudinal data approach

This research took a student-centric view, incorporating information on the prior and current educational experiences of students. This differs from many prior analyses on VET administrative data, which have been limited to training activity within a single year, split by various program and sociodemographic characteristics. These analyses are useful, but taking a student-centric view incorporates the history and experience of an individual, tracked over time using the unique student identifier (Hall 2024). To this end, NCVER derived numerous variables capturing the timing and number of different programs and subjects enrolled in at each point of a student's journey, which are described below. The data were created using the Master Student Longitudinal Construct (MSLC).

Analysis period

For most analyses this research examined the same population of learners over a fixed time period to examine their pathways and how their outcomes develop. A research window of five years was defined to follow each student from their first activity in the VET system. Activity commencing in 2016 marks the beginning of the dataset, as this represents the first year of widespread and valid data submitted with a corresponding USI.

The benefit of this research window approach is that the outcomes for each student are observed over a consistent and comparable timeframe. This overcomes issues such as, for example, where a student commencing in VET studies in 2016 will have eight years of VET activity to assess, whereas a student commencing in 2022 will have two years of activity and potentially no completion information available if still in training.

To enable the five-year research window, students needed to have some VET activity by 2019, at the latest, to be included in the analyses. Any further VET activity undertaken six years or later from a student's first VET activity was discarded. To capture students with programs commencing from the beginning of the window, students with known continuing program activity in 2016 (that is, starting their program in 2015 or earlier) were also excluded.

Master Student Longitudinal Construct

NCVER's Master Student Longitudinal Construct (MSLC) is an innovative tool designed to enable detailed, student-centric analyses of vocational education and training administrative data.

The MSLC allows for detailed, longitudinal tracking of individual student pathways and outcomes, providing a comprehensive view of their educational journey. This helps to provide insights into patterns of enrolment, completion and progression in the VET system, and to analyse factors influencing student success or non-completion. The MSLC enables aggregation of enrolment records to derive metrics such as the number of subjects/programs in which a student is enrolled and the proportion of successful outcomes.

The MSLC is constructed with several goals in mind:

- 1 Identifying unique students in VET administrative data:
 - a. The MSLC uses the USI and secondary identifiers (encrypted name, gender, date of birth) to assign a Master Student Key and applies data-cleaning to exclude records with inconsistent or missing data.

- 2 Building a longitudinal, student-centric view of training activity:
 - a. Accounting for supersession: the MSLC handles changes in subject, program and RTO identifiers over time (for example, where an RTO merges, a program is updated etc).
 - b. De-duplication: the MSLC removes duplicate records (for example, submitted repeatedly for a program enrolment taken over several years) to retain the most up-to-date information.
 - c. Completion status: enrolment and completion records are submitted separately to NCVER. The MSLC combines them to determine the status of each program.
- 3 Resolving inconsistencies in demographic information:
 - a. If applicable, the MSLC can be used to resolve conflicts in a student's demographic data, for example, by searching for the majority value reported over multiple records across a given time period.

For the relevant analyses, the MSLC was used to construct a dataset covering program enrolments between 2016 and 2023. Technical details on the implementation of the MSLC were reported previously in Appendix A (pp.28–30) of Hall (2024).

Appendix C – Subject-level analyses

Defining pass/not pass criteria

Cumulative counts of the number of foundation skills subjects passed and not passed over time were created to include in analyses as a predictor of success. Foundation skills subject activity was counted by simplifying the AVETMISS Outcome Identifier (numeric IDs in parentheses) to *passed* and *not passed*, defined as:

- *Passed*: where the student had been assessed and satisfied all the requirements for the subject (20) or completed in a way that was non-assessable but satisfied the requirements of the training organisation (81); or
- *Not passed*: where the student attempted all the requirements and was assessed as not competent, or as not satisfying one or more of the requirements (30), withdrew or discontinued their studies (40), or did not satisfy the non-assessable requirements of the training organisation (82)

Foundation skills subject-level activity was not counted in the case of recognition of prior learning (51/52), credit transfer (60), or activity reported as not yet started (85). These outcome identifiers were omitted so that only activity that suggested *additional* foundation skills learning experience over and above that achieved already was assessed and counted.

Appendix D – Foundation skills program completion modelling

Modelling methodology

To model the probability of completing a foundation skills program, generalised linear mixed models were used (GLMMs). This is a complex statistical modelling technique used to analyse data with hierarchical structures, such as students nested within programs. These models recognise that students may be more or less likely to complete due to the specific foundation skills program undertaken. Likewise, as students may have taken multiple foundation skills programs over the research window, the model needed to account for a student's success over time.

GLMMs use so-called 'random effects' as a way of statistically controlling for the inherent variation and clustering at the student and program level. In essence, variability specific to the individual student and program is accounted for, meaning that the model was better able to estimate the overall effects of key student and program attributes of interest, independent of the particular student or program undertaken. A logistic GLMM was used, where each observation represented an enrolment with a binary completion outcome of complete or non-complete. GLMMs were fitted using *MixedModels* for the Julia programming language (Alday & Bates 2025).

Detailed foundation skills program completion model results

Table D1 Parameters for foundation skills completion generalised linear mixed effects models

Variable	Subcategory	Non-LOTE log-odds (SE)	LOTE model log-odds (SE)
Gender	Female	0.324*** (-0.015)	0.347*** (-0.012)
	Unknown	0.392*** (-0.122)	0.411*** (-0.132)
Age	Age	-0.089*** (-0.003)	-0.019*** (-0.003)
	Age squared	0.001*** (-0.00003)	0.0002*** (-0.00003)
Indigenous status	Y	0.009 (-0.02)	-0.277 (-0.197)
Disability status	Y	0.385*** (-0.017)	0.245*** (-0.025)
Regional-remote	Y	0.132*** (-0.016)	0.111*** (-0.019)
SEIFA	Quintile 2	0.207*** (-0.019)	-0.012 (-0.016)
	Quintile 3	0.160*** (-0.021)	-0.134*** (-0.017)
	Quintile 4	0.199*** (-0.024)	-0.137*** (-0.017)
	Quintile 5: least disadvantaged	0.282*** (-0.026)	-0.315*** (-0.019)
	Unknown	0.114** (-0.046)	0.236*** (-0.042)
Previous highest education level	Certificate I to IV	0.271*** (-0.023)	0.388*** (-0.021)
	Did not go to school	0.012 (-0.101)	-0.568*** (-0.025)
	Diploma and above	0.322*** (-0.037)	0.282*** (-0.016)
	Unknown	0.117*** (-0.033)	0.197*** (-0.023)
	Year 9/10/11	-0.084*** (-0.022)	-0.143*** (-0.016)
Labour force status	Not in labour force	-0.332*** (-0.022)	0.213*** (-0.018)
	Not stated	0.0001 (-0.03)	-0.032 (-0.025)
	Unemployed	0.050** (-0.02)	0.235*** (-0.018)
Ever early school leaver	Y	0.149*** (-0.024)	0.219*** (-0.034)
Funding source	Government-funded	0.276*** (-0.022)	0.099*** (-0.019)
Program level of education	Certificate II and above	0.139*** (-0.043)	-0.816*** (-0.076)
	Statements of attainment not identifiable by level	-0.891** (-0.388)	-0.919** (-0.46)
Training provider	Community education provider	0.935*** (-0.024)	0.273*** (-0.019)
	Enterprise provider	-0.026 (-0.045)	-0.561*** (-0.083)
	Private training provider	0.462*** (-0.022)	0.413*** (-0.018)
	University	-0.191*** (-0.061)	-0.276*** (-0.028)
COVID during enrolment	During	-0.286*** (-0.038)	0.017 (-0.021)
	Post	-0.482*** (-0.025)	0.114*** (-0.018)
Number of FS subjects completed at start of enrolment		0.019*** (-0.002)	0.018*** (-0.001)
Number of FS subjects withdrawn from at start of enrolment		-0.026*** (-0.004)	-0.049*** (-0.002)
VET overlap	Started FS during VET	-1.051*** (-0.022)	-0.784*** (-0.029)
	Started VET during FS	-0.704*** (-0.026)	-0.435*** (-0.023)
Full-time student	Y	1.236*** (-0.02)	1.269*** (-0.012)
Intercept		-0.672*** (-0.184)	-1.229*** (-0.22)
Observations (N)		167,027	272,613
Random effects			
Student-level (standard deviation)		0.7	0.55
Program-level (standard deviation)		1.49	1.73
Fit statistics			
Log likelihood		-73,498.52	-118,698.80
Akaike Inf. Crit.		147,073.00	237,473.60
Bayesian Inf. Crit.		147,454.00	237,873.20
R ² (Tjur)		0.31	0.25

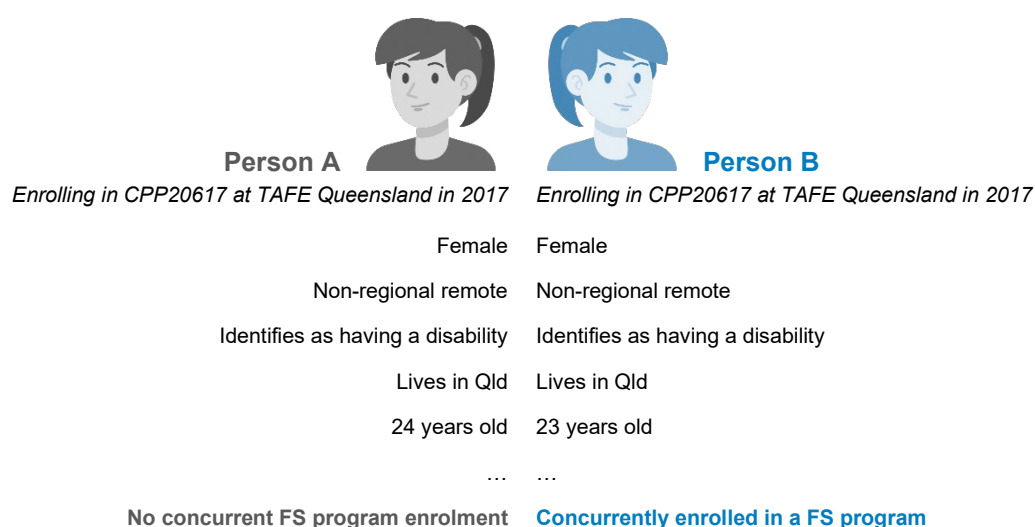
Note: *p **p***p<0.01. Models fitted using MixedModels for the Julia programming language (Alday & Bates 2025).

Appendix E – Propensity score methodology

To evaluate the effectiveness of foundation skills on various educational and further outcomes, this project sought to compare outcomes from VET student enrolments where foundation skills were undertaken to VET student enrolments where no foundation skills were undertaken. However, a simple comparison of VET enrolments where foundation skills were and were not undertaken might be misleading, because students who take foundation skills might differ in important ways from those who did not.

Propensity score methods help by creating a matched set of student enrolment records, where the student did not take foundation skills but are on average very similar to those who did. Doubly robust methods add regression modelling to further control for key characteristics and estimate outcomes in the presence and absence of foundation skills experience (Ho et al. 2007). This way, the effect of the foundation skills itself can be isolated more accurately, as the matched groups are comparable on all observed characteristics *except* for having taken additional foundation skills during the VET program. A visual representation of how one might match individuals is presented below in figure E1.

Figure E1 Example of propensity score matched datasets



The target estimand¹¹ for all propensity score-based analyses was an average treatment effect on the treated (ATT) of taking foundation skills alongside a VET program (the treatment). The ATT compares the average outcome of those who were treated to the average outcome they would have had if they had not been treated.

¹¹ An estimand is the specific quantity or effect that a study aims to estimate.

Matching details

Variables used for matching

For all analyses presented, VET program enrolment records were matched on the presence/absence of concurrent foundation skills during the enrolment, across the following characteristics:

- Sociodemographics: age, born in Australia, disability status, early school leaver, gender, Indigenous status, highest prior education, labour force status, language other than English, remoteness, SEIFA
- Program and program delivery characteristics: funding source, training provider type, overlap with COVID, field of education, level of education
- Personal characteristics: full-time status, prior foundation skills experience.

Propensity score modelling

Models were fitted to predict the probability that a VET program enrolment would have a concurrent foundation skills enrolment using the student/program characteristics listed above. Essentially, a propensity score model gives each program enrolment record a probability score that reflects how likely the program enrolment was to have been taken concurrently with concurrent foundation skills. This score is used as a single numeric value for matching enrolments with similar scores.

To estimate propensity scores as accurately as possible, a combination of models, from simple to complex, was used, including: Naïve Bayes (Majka 2024); light gradient-boosting machines (Shi et al. 2024); and conditional inference trees (Hothorn, Hornik & Zeileis 2006). The propensity score was a weighted average of predicted probabilities from each model used, weighted by each model's log-loss value (a common measure of predictive performance), ensuring the most accurate models contributed most to the propensity score estimation.

Matching algorithms

Next, generalised full matching (Sävje et al. 2021) was conducted using the 'MatchIt' and 'quickmatch' packages for R (Ho et al. 2011; Sävje, Higgins & Sekhon 2023). Unlike traditional matching methods, which may pair units based on strict one-to-one or one-to-many rules, generalised full matching allows for each treated unit to be matched with one or more control units in a way that minimises overall imbalance across variables used for matching. This flexibility helps to preserve the sample size and improves the precision of estimates, as opposed to discarding unmatched units, as some traditional methods do.

Matching on the propensity score ensures approximate matching on all characteristics listed above, but to ensure maximal comparability, certain variables were required to be exactly equal to qualify as a match. All program enrolments were matched to be in the exact same field of education, at the same level of education, starting in the same year. To ensure the results were robust when stratified by cluster, the matched students' LOTE and born in Australia status were also matched exactly.

Estimating the ATT

G-computation

The result of the propensity score matching was a dataset balanced on sociodemographic, program and personal characteristics between those with and without concurrent foundation skills experience. This may be sufficient to calculate an ATT by taking the (unadjusted) difference between the two groups on the outcome. However, an additional logistic regression modelling step was used to control for all the relevant characteristics listed above in the matched datasets when calculating the difference on the outcome. This is called ‘doubly robust estimation’ because it combines two different approaches (propensity score matching and regression) to ensure that the ATT estimate is accurate even if one of the two approaches is imperfect (Ho et al. 2007).

The results presented are marginal differences between the predicted outcomes (from the regression model on matched datasets) for each foundation skills student if had they not taken concurrent foundation skills study versus if they had. This method, referred to as G-computation, is a simulation-based inference examining differences in potential outcomes under different scenarios (Wang, Nianogo & Arah 2017). All estimates were calculated using `marginaleffects` for R (Arel-Bundock, Greifer & Heiss 2024).




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