



LITERACY AND NUMERACY TEST FOR INITIAL TEACHER EDUCATION STUDENTS

2018 Technical Report

FOR THE DEPARTMENT OF EDUCATION
AND TRAINING, APRIL 2019

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1. OVERVIEW

1.1 Administration

The Literacy and Numeracy Test for Initial Teacher Education students ('the test') was conducted across Australia for the third year, in four test windows, from February 2018 to November 2018. In this period, 24 856 unique candidates attempted one or both components of the test (literacy and numeracy), of which 195 had initially registered for the test in 2016 and 1914 in 2017. In 2018, 22 747 candidates registered for and attempted one or both components of the test for the first time.

In 2018, 22 066 candidates sat the literacy component for the first time and 22 011 candidates sat the numeracy component for the first time, approximately 1400 fewer for each domain than in 2017. During 2018, there were 2836 resits (by 2413 candidates) of the literacy component for a second, third, fourth or fifth time, including the resits of 95 candidates who first registered in 2016 and 1199 in 2017. For numeracy, there were 2853 resits (by 2376 candidates) of the numeracy component in 2018 for a second, third, fourth or fifth time, including the resits of 131 candidates who first registered in 2016 and 1132 in 2017. As for previous years, approximately three-quarters (74%) of the candidates were female, with slightly more candidates from primary courses than from secondary courses (39% and 37% respectively).

Students from 47 higher education providers sat the test in 2018, one less than in 2017 and the same number as in 2016. The test was offered at 25 test centres in all states and territories, or via remote proctoring under prescribed conditions.

The majority (76%) of first-attempt candidates in 2018 sat the test at a test centre, with 24% choosing remote proctoring. As for 2017, candidates resitting the test in 2018 were more likely to do so via remote proctoring. For example, 32% of second-attempt candidates, 40% of third-attempt candidates and 47% of fourth-attempt candidates sat the test remotely in 2018.

Table 1 shows the number of sittings by location for each test window (TW).

Table 1: Number of sittings by location and by test window, including resits¹

Location of testing	TW1		TW2		TW3		TW4	
	Literacy	Numeracy	Literacy	Numeracy	Literacy	Numeracy	Literacy	Numeracy
Capital cities	3621	3585	4101	4109	3789	3797	4198	4168
Regional cities	890	903	1158	1169	812	810	NA	NA
Remote proctoring	1291	1305	1573	1581	1806	1745	1663	1692
Total sittings	5802	5793	6832	6859	6407	6352	5861	5860

A small number of candidates chose to attempt only one of the test components at each test window, as shown by Table 2.

¹ Tables 1 and 2 include resit candidates in all test windows

Table 2: Summary of sittings by test window, including resits

Test	TW1	TW2	TW3	TW4	Total
Both literacy and numeracy	5075	5914	5387	4872	21248
Literacy only	727	918	1020	989	3654
Numeracy only	718	945	965	988	3616
Total sittings	6520	7777	7372	6849	28518

Testing conditions were modified to accommodate 277 candidates with special needs in 2018 compared to 179 in 2017. Accessible versions of the test were also available for candidates who required supportive technology, such as a screen reader. The online accessible versions of the test were used once for literacy and once for numeracy in 2018. There was a significant increase in the number of requests to accommodate anxiety disorder and dyslexia in 2018 compared to 2017, more so for numeracy. The administration of the test is further described in Section 2 of this report.

1.2 Candidate results

Table 3 shows the number of candidates attempting each component and both components, and their pass rates at the end of 2018. The table shows how the pass rates increase over time as candidates resit and achieve the standard. For example, of those candidates who initially registered for the literacy component in 2016, the pass rate increased by 2.1% from 95.2% at the end of 2016 to 97.3% at the end of 2017, but only by a further 0.3% to 97.6% at the end of 2018. By the end of 2018, some resitting candidates had attempted the test up to five times.

In the three-year period from 2016 to 2018, the number of unique candidates participating in one or more components of the test was 59 364. Of these, 58 536 sat the literacy component and 58 561 sat the numeracy component. Almost all candidates (57 733) attempted both components of the test while 803 attempted literacy only and 828 attempted numeracy only. At the end of 2018, of the 57 733 candidates who had attempted both components, 52 356 candidates had achieved both standards – an overall pass rate of 90.7% (very similar to the overall pass rate of 90.8% at the end of 2017).

Table 3: Summary of candidate results

Component	Year of registration	At end of year	Number of unique candidates	Standard achieved	Standard not achieved	Cancelled due to misconduct	Pass rate
Literacy	2016	2016	13083	12460	622	1	95.2
	2016	2017	13083	12732	350	1	97.3
	2016	2018	13083	12773	310	0	97.6
	2017	2017	23387	21521	1866	0	92.0
	2017	2018	23387	22213	1174	0	95.0
	2018	2018	22066	19956	2110	0	90.4
	2016–18	2018	58536	54942	3594	0	93.9
Numeracy	2016	2016	13084	12324	760	0	94.2
	2016	2017	13084	12623	461	0	96.5
	2016	2018	13084	12662	422	0	96.8
	2017	2017	23466	21655	1810	1	92.3
	2017	2018	23466	22238	1228	0	94.8
	2018	2018	22011	19818	2193	0	90.0
	2016–18	2018	58561	54718	3843	0	93.4
Both	2016–18	2018	57733	52356	5377	0	90.7

Table 4 shows the percentage of candidates by the number of attempts they had at each component of the test, as at the end of 2018. It can be seen that across the three years and for both components,

approximately 93.5% of candidates attempt the test once, approximately 5% of candidates attempted the test twice, and approximately 2% of candidates attempted the test three or more times. For literacy, by the end of 2018, approximately 5.5% of the candidates who registered in 2016 had resat the test, compared to 8.6% of the 2017 cohort and 5% of the 2018 cohort. For numeracy, by the end of 2018, approximately 6.3% of the candidates who registered in 2016 had resat the test, compared to 7.8% of the 2017 cohort and 5% of the 2018 cohort.

Table 4: Summary of resit rates by year of registration and overall

Domain	Year of registration	Number of unique candidates	Unique candidates who had 1 attempt only (%)	Unique candidates who had 2 attempts only (%)	Unique candidates who had 3 attempts only (%)	Unique candidates who had 4 attempts only (%)	Unique candidates who had 5 attempts only (%)
Literacy	2016	13 083	94.5	3.9	1.1	0.5	0.0* (6)
	2017	23 387	91.4	5.9	2.2	0.5	0.0 (5)
	2018	22 066	94.9	4.5	0.5	0.0 (3)	NA
	2016–18	58 536	93.4	4.9	1.3	0.3	0.0 (11)
Numeracy	2016	13 084	93.7	4.1	1.5	0.6	0.1
	2017	23 466	92.2	5.2	2.1	0.5	0.0 (8)
	2018	22 011	94.9	4.4	0.6	0.0 (4)	NA
	2016–18	58 561	93.6	4.7	1.4	0.3	0.0 (26)

*The zero percentages are rounded and relate to the small numbers shown in brackets.

Table 5 shows that of the 22 066 candidates who attempted the literacy component for the first time in 2018, 87.5% achieved the standard at their first sitting, compared to 93.3% in 2016 and 89.2% in 2017. For numeracy in 2018, 87.4% of the 22 011 candidates achieved the standard at their first sitting, compared to 92.5% in 2016 and 90.0% in 2017.

Under the standard resit allowance, candidates who do not achieve the standard on their first attempt are permitted up to two additional sittings. In a small number of cases, more than two resits may be granted in exceptional circumstances. The number of resitting candidates in 2018 for both literacy and numeracy were significantly higher in 2018 than in 2017. This was partly because resitters in 2018 included those who had registered in 2016, 2017 and 2018. Another reason was the increase in the number of candidates permitted four and five attempts, up from 35 in 2017 to 168 in 2018 for literacy and up from 49 in 2017 to 200 in 2018 for numeracy. For literacy, the total number of resittings increased from 1819 in 2017 to 2836 in 2018. For numeracy, the total number of resittings increased from 1753 in 2017 to 2853 in 2018.

For literacy, of the 2022 second-attempt candidates and the 646 third-attempt candidates, 51.3% and 46.0% respectively achieved the standard, similar rates to those in 2017 (53.6% and 39.9%). Of the 157 candidates who were granted a fourth sitting, 33.1% were successful compared to 40.0% in 2017.

For numeracy, of the 1996 second-attempt candidates and the 657 third-attempt candidates, 45.3% and 46.7% respectively achieved the standard, similar rates to those in 2017 (50.0% and 41.3%). Of the 174 candidates who were granted a fourth sitting, 31.0% were successful compared to 34.7% in 2017.

Table 5: Number of sittings and pass rates by attempt and by test window in 2018

		TW1	Pass rate	TW2	Pass rate	TW3	Pass rate	TW4	Pass rate	Total	Pass rate
Literacy	First sitting	5196	88.9	6149	87.9	5697	86.7	5024	86.4	22066	87.5
	Second sitting	477	52.4	472	57.0	485	47.0	588	49.3	2022	51.3
	Third sitting	112	55.4	168	48.2	179	41.3	187	42.8	646	46.0

	Fourth sitting	17	41.2	38	34.2	41	31.7	61	31.1	157	33.1
	Fifth sitting	0	NA	5	0.0	5	40.0	1	100.0	11	27.3
	Total sittings	5802		6832		6407		5861		24902	
Numeracy	First sitting	5182	88.9	6195	88.6	5647	85.9	4987	85.8	22011	87.4
	Second sitting	470	46.2	444	46.2	469	40.5	613	47.6	1996	45.3
	Third sitting	106	35.8	170	43.5	175	22.9	206	43.2	657	36.7
	Fourth sitting	33	33.3	46	39.1	56	23.2	39	30.8	174	31.0
	Fifth sitting	2	50.0	4	75.0	5	40.0	15	26.7	26	38.5
	Totals sittings	5793		6859		6352		5860		24864	

Candidates' results for 2018 are described in more detail in Section 3 of this report.

1.3 Test design and in-test trialling for replenishment of item pool

In the first half of 2018, in test windows 1 and 2, there were 10 equivalent test forms for literacy and 8 equivalent test forms for numeracy. In the second half of 2018, in test windows 3 and 4, a proportion of the test forms were refreshed using items that were trialled in 2017. In these test windows, there were 18 equivalent test forms for literacy and 17 equivalent test forms for numeracy.

For literacy, each test form comprised five 12-item clusters (C1 to C5) totalling 60 items. For numeracy, the test was divided into two sections as follows: section 1 ('calculator available' – CA) comprising four 12-item clusters (48 items), and section 2 ('calculator not available' – CN) comprising two 6-item clusters (12 items), totalling 60 items.

In order to augment and replenish the pool of items available for the test in future administrations, items were trial-tested within the live instruments. These items were administered in small clusters (one to five items) and did not contribute to the candidates' scores. Ninety literacy items and 85 numeracy items were administered in the in-test trial clusters. Approximately 500 candidates were administered each of these items.

Examples of one literacy test and one numeracy test with in-test trial clusters are shown below.

Literacy component 1	C1	C2	C3	C4	C5	Trial C
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	Section 1					Section 2		
Numeracy component 1	CA1	CA2	CA3	CA4	Trial CA	CN1	CN2	Trial CN

In the second half of 2018 and the first half of 2019, 90 Phase 4 literacy items and 85 Phase 4 numeracy items were in-test trialled. Of these, 6 literacy items and 1 numeracy item were judged to have unsatisfactory psychometric properties and were deleted from the pool. The remaining items were well-targeted for difficulty across the three reporting Bands as required by the test construct and assessment framework, thereby ensuring adequate test replenishment. The Phase 4 trial items revealed some differential item functioning (DIF); however, for both literacy and numeracy, the DIF was 'well-balanced' for most variables apart from the Age variable. For example, for the Gender variable, while 3 literacy trial items and 5 numeracy trial items favoured female candidates, 6 literacy trial items and 6 numeracy trial items favoured male candidates.

For the Age variable, however, only 1 literacy trial item and 2 numeracy trial items favoured candidates aged 17–25 years, whereas 4 literacy trial items and 5 numeracy trial items favoured candidates aged 26+ years. For more detail see Section 5.

1.4 Comparison of 2016, 2017 and 2018 results

Table 6 shows that while the mean scale scores of first-attempt candidates changed little across the three years, the pass rates showed steady decline for both domains. For literacy, from 2016 to 2018, the pass rates of first-attempt candidates declined from 93.3% in 2016 to 89.2% in 2017 and 87.5% in 2018. For numeracy, from 2016 to 2018, the pass rates of first-attempt candidates declined from 92.4% in 2016 to 90.0% in 2017 and 87.4% in 2018. The decline in the pass rates of first-attempt candidates reflects the introduction of the revised standards mid-2017.

The literacy mean scale scores for second-attempt and third-attempt candidates were 1 to 2 scale score points lower in 2017 and 2018 than in 2016, indicating slightly lower achievement as a cohort and partly contributing to their lower pass rates. The reverse was true for numeracy where numeracy mean scale scores for second-attempt and third-attempt candidates were 1 to 2 scale score points higher in 2017 and 2018 than in 2016. For literacy, the pass rates of the second-attempt and third-attempt candidates were considerably lower in 2017 and 2018 than in 2016. For numeracy, the pass rates of second-attempt and third-attempt candidates in 2017 and 2018 were similar to those in 2016.

The number of third- and fourth-attempt candidates increased considerably in 2018 and fifth-attempt candidates appeared for the first time. For both literacy and numeracy, the number of third-attempt candidates approximately doubled from 2017 to 2018 (from 296 to 646 for literacy and from 339 to 657 for numeracy). These increases are due to the revised standards but also include candidates who first registered in 2016 or 2017.

The largest increase was for fourth-attempt candidates. For literacy, the number of fourth-attempt candidates increased from 35 in 2017 to 157 in 2018. For numeracy, the increase was from 49 in 2017 to 174 in 2018.

Table 6: Comparison of performance by attempt number, overall and by subscale

Component	Attempt number	Whole test and subscale	2016			2017			2018		
			Number of sittings	Mean	Pass rate	Number of sittings ²	Mean	Pass rate	Number of sittings ³	Mean	Pass rate
Literacy	1st	Overall	13083	117.5	93.3	23387	117.0	89.2	22066	116.8	87.5
		Reading		117.4			117.1			117.1	
		Technical skills of writing		117.5			116.9			116.2	
	2nd	Overall	341	107.5	67.7	1488	106.5	53.6	2022	106.6	51.3
		Reading		107.2			106.6			106.6	
		Technical skills of writing		107.8			106.1			106.6	
	3rd	Overall	25	107.7	76.0	296	105.3	39.9	646	106.0	46.0
		Reading		107.3			105.5			105.6	
		Technical skills of writing		108.5			105.1			106.6	
	4th	Overall	0	NA	NA	35	106.1	40.0	157	104.8	33.1
		Reading		NA	NA		105.5			104.2	
		Technical skills of writing		NA	NA		107.2			105.8	
	5th	Overall	0	NA	NA	0	NA	NA	11	105.4	27.3
		Reading		NA	NA		NA	NA		105.0	
		Technical skills of writing		NA	NA		NA	NA		105.5	
Numeracy	1st	Overall	13084	122.4	92.4	23466	123.0	90.0	22011	122.8	87.4
		Number & algebra		121.8			122.3			122.5	
		Measurement & geometry		121.5			122.8			122.6	
		Statistics & probability		122.7			123.0			122.6	
		Calculator available		122.5			123.2			123.1	
		Calculator not available		119.3			119.7			120.6	
	2nd	Overall	406	107.5	55.4	1365	108.1	50.0	1996	108.6	45.3
		Number & algebra		106.1			106.4			107.1	
		Measurement & geometry		108.0			109.1			109.1	

² Sittings beyond the first attempt include candidates who first registered in previous years³ Sittings beyond the first attempt include candidates who first registered in previous years

		Statistics & probability		109.6			110.0			110.7	
		Calculator available		108.5			109.4			109.8	
		Calculator not available		103.7			103.4			103.9	
	3rd	Overall	40	105.4	37.5	339	107.2	41.3	657	107.7	36.7
		Number & algebra		103.9			105.7			106.1	
		Measurement & geometry		106.8			108.2			108.4	
		Statistics & probability		107.0			108.8			109.7	
		Calculator available		106.2			108.2			108.5	
		Calculator not available		102.3			103.5			104.6	
	4th	Overall	2 ⁴	NA	NA	49	105.9	34.7	174	107.2	31.0
		Number & algebra		NA	NA		104.0			105.9	
		Measurement & geometry		NA	NA		107.0			107.8	
		Statistics & probability		NA	NA		108.2			108.8	
		Calculator available		NA	NA		106.7			107.9	
		Calculator not available		NA	NA		103.5			104.8	
	5th	Overall	0	NA	NA	0	NA	NA	26	109.4	38.5
		Number & algebra		NA	NA		NA	NA		107.8	
		Measurement & geometry		NA	NA		NA	NA		110.1	
		Statistics & probability		NA	NA		NA	NA		111.9	
		Calculator available		NA	NA		NA	NA		110.1	
		Calculator not available		NA	NA		NA	NA		106.3	

⁴ Not reported due to small (n = 2) group size

2. TEST ADMINISTRATION WINDOWS 1–4 IN 2018

This section covers the demographic characteristics of candidates who sat the test in 2018. Details on test centres, remote proctoring and other administrative matters can be found in each of the four 2018 test window administration reports submitted separately.

2.1 Demographic Characteristics of Candidates

Nearly 25 000 candidates from 47 institutions sat the test in 2018, one fewer institution than in 2017. Of the 48 institutions that participated in 2017, Morling College did not participate in 2018.

Alphacrucis College	Queensland University of Technology
Australian Catholic University	RMIT University
Australian College of Physical Education	Southern Cross University
Avondale College	Swinburne University of Technology
Central Queensland University	Tabor Adelaide
Charles Darwin University	The University of Adelaide
Charles Sturt University	The University of Melbourne
Christian Heritage College	The University of New England
Curtin University	The University of New South Wales
Deakin University	The University of Newcastle
Eastern College Australia	The University of Notre Dame Australia
Edith Cowan University	The University of Queensland
Excelsia College	The University of Sydney
Federation University Australia	The University of Western Australia
Flinders University	University of Canberra
Griffith University	University of South Australia
Holmesglen TAFE	University of Southern Queensland
James Cook University	University of Tasmania
La Trobe University	University of Technology Sydney
Macquarie University	University of the Sunshine Coast
Melbourne Polytechnic	University of Wollongong
Monash University	Victoria University
Montessori World Educational Institute	Western Sydney University
Murdoch University	

Table 7 shows the demographic characteristics of all candidates who sat the test in 2018. This includes candidates who first registered for the test in 2018 plus those who registered in 2016 or 2017 and resat the test in 2018. It shows that the majority of candidates (75%)⁵ were female, resided in metropolitan areas (83%) and most candidates (66%, up from 62% in 2017) were in the age group 17–25. The majority of candidates (67%, up from 60% in 2017) were enrolled in an undergraduate course. The majority of undergraduate candidates were those in their third and fourth years. Over half of the postgraduate candidates who sat the test in 2018 were those in their first year. In regard to course category, candidates were mainly enrolled in primary teacher education courses (39%), followed by secondary (36%, down from 38% in 2017), other teacher education courses (16%), early childhood (8.5%, up from 7% in 2017) and special education (less than 1%).

The percentage of international candidates attempting the test in 2018 was 6%, the same as for 2017. The percentages of Indigenous candidates and candidates from provincial areas were also unchanged at 1.6% and 16% respectively.

Table 7: Demographic characteristics of unique candidates who sat the test in 2018 (including 2016–17 resitters)

Characteristic	Category	Literacy		Numeracy	
		N	%	N	%
Gender	Female	17411	74.5	17412	74.8
	Male	5940	25.4	5854	25.2
	Indeterminate/intersex	9	0.0	8	0.0
Age	17–25	15408	66.0	15306	65.8
	26–30	3396	14.5	3401	14.6
	31–35	1724	7.4	1721	7.4
	36–40	1166	5.0	1156	5.0
	41–45	864	3.7	883	3.8
	46+	802	3.4	807	3.5
International Students	No	21853	93.5	21854	93.9
	Yes	1507	6.5	1420	6.1
English as a First Language	Yes	20143	86.2	20255	87.0
	No	3217	13.8	3019	13.0
Indigenous	No	22586	96.7	22482	96.6
	Yes	367	1.6	378	1.6
	Not disclosed	407	1.7	414	1.8
Residential Area	Metropolitan areas	19415	83.1	19350	83.1
	Provincial areas	3688	15.8	3680	15.8
	Remote areas	168	0.7	165	0.7
	International	85	0.4	75	0.3
	Invalid or Missing	4	0.0	4	0.0
Program Type	Undergraduate	15701	67.2	15621	67.1
	Postgraduate	7659	32.8	7653	32.9
Program Type by Year Level	Undergraduate first year	2024	8.7	2091	9.0
	Undergraduate second year	2715	11.6	2628	11.3
	Undergraduate third year	4838	20.7	4780	20.5
	Undergraduate fourth year	4762	20.4	4756	20.4
	Undergraduate fifth year or above	496	2.1	495	2.1
	Undergraduate graduated	866	3.7	871	3.7
	Postgraduate first year	4023	17.2	3993	17.2
	Postgraduate second year	2044	8.8	2027	8.7
	Postgraduate third year	268	1.1	262	1.1
	Postgraduate fourth year	328	1.4	336	1.4
	Postgraduate fifth year or above	292	1.3	298	1.3
	Postgraduate graduated	704	3.0	737	3.2

⁵ In the descriptive text accompanying the tables throughout the report, most percentages are rounded to the nearest whole per cent.

Course Category	Teacher education: early childhood	2002	8.6	1981	8.5
	Teacher education: primary	9180	39.3	9118	39.2
	Teacher education: secondary	8359	35.8	8372	36.0
	Teacher education: special education	143	0.6	149	0.6
	Teacher education: other	3676	15.7	3654	15.7

The following demographic analysis separates the 2018 candidates into five groups for each component of the test: first-attempt candidates, second-attempt candidates (first resit), third-attempt candidates (second resit), fourth-attempt candidates (third resit), fifth-attempt candidates (fourth resit) and candidates who achieved no standard.

Table 8 shows the demographic characteristics of the first-attempt candidates for each component of the test in 2018.⁶ The demographic characteristics of this cohort are very similar to those described in Table 7 above.

Table 8: Demographic characteristics of first-attempt candidates who sat the test in 2018

Characteristic	Category	Literacy		Numeracy	
		N	%	N	%
Gender	Female	16324	74.0	16272	73.9
	Male	5733	26.0	5731	26.0
	Indeterminate/intersex	9	0.0	8	0.0
Age	17–25	14581	66.1	14563	66.2
	26–30	3170	14.4	3185	14.5
	31–35	1645	7.5	1639	7.4
	36–40	1101	5.0	1080	4.9
	41–45	824	3.7	817	3.7
	46+	745	3.4	727	3.3
International Students	No	20740	94.0	20627	93.7
	Yes	1326	6.0	1384	6.3
English as a First Language	Yes	19314	87.5	19220	87.3
	No	2752	12.5	2791	12.7
Indigenous	No	21346	96.7	21281	96.7
	Yes	334	1.5	335	1.5
	Not disclosed	386	1.7	395	1.8
Residential Area	Metropolitan areas	18313	83.0	18295	83.1
	Provincial areas	3519	15.9	3486	15.8
	Remote areas	157	0.7	154	0.7
	International	73	0.3	73	0.3
	Invalid or Missing	4	0.0	3	0.0
Program Type	Undergraduate	14739	66.8	14698	66.8
	Postgraduate	7327	33.2	7313	33.2
Program Type by Year Level	Undergraduate first year	2014	9.1	2078	9.4
	Undergraduate second year	2551	11.6	2521	11.5
	Undergraduate third year	4708	21.3	4660	21.2
	Undergraduate fourth year	4386	19.9	4376	19.9
	Undergraduate fifth year or above	414	1.9	412	1.9
	Undergraduate graduated	666	3.0	651	3.0
	Postgraduate first year	4001	18.1	3993	18.1
	Postgraduate second year	1905	8.6	1897	8.6
	Postgraduate third year	257	1.2	252	1.1
	Postgraduate fourth year	305	1.4	306	1.4
	Postgraduate fifth year or above	265	1.2	265	1.2
	Postgraduate graduated	594	2.7	600	2.7

⁶ This cohort is referred to as the first-attempt candidates. Subsequent tables show demographic characteristics for candidates who resat the test.

Course Category	Teacher education: early childhood	1825	8.3	1795	8.2
	Teacher education: primary	8640	39.2	8576	39.0
	Teacher education: secondary	8093	36.7	8117	36.9
	Teacher education: special education	139	0.6	140	0.6
	Teacher education: other ⁷	3369	15.3	3383	15.4

In 2018, there were 2836 resits (by 2413 candidates) of the literacy component (up from 1819 in 2017) and 2853 resits (by 2376 candidates) of the numeracy component (up from 1753 in 2017). For literacy, there were 2022 second attempts, 646 third attempts, 157 fourth attempts (compared to 1488, 296 and 35 respectively in 2017) and 11 fifth attempts. For numeracy, the resit numbers were 1996 second attempts, 657 third attempts and 174 fourth attempts (compared to 1365, 339 and 49 respectively in 2017) and 26 fifth attempts. These resit numbers included candidates who did not achieve one or more standard in 2016 and 2017.

Table 9 shows the demographic characteristics of the candidates who sat the test twice (first resit) during 2018. It shows that the overwhelming majority of these resit candidates were female (82% for literacy, 90% for numeracy), mostly in the age group 17–25 (70% for literacy, 66% for numeracy). The proportion of females in the second-attempt cohort exceeded the proportion in the first-attempt cohort (74%). The majority of second-attempt candidates were enrolled in an undergraduate course (76% for literacy, 75% for numeracy, up from 68% and 67% in 2017). These proportions exceed the proportion of undergraduate candidates in the first-attempt cohort (67%). Table 9 also shows that for literacy, the proportion of second-attempt candidates for whom English was not their first language was more than double that of first-attempt candidates (29% compared to 13%). For numeracy, the proportion was only slightly higher (16% compared to 13%).

Table 9: Demographic characteristics of second-attempt candidates⁸

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	1661	82.1	6.7	1801	90.2	7.2
	Male	361	17.9	1.4	195	9.8	0.8
Age	17–25	1422	70.3	5.7	1308	65.5	5.3
	26–30	272	13.5	1.1	287	14.4	1.2
	31–35	118	5.8	0.5	130	6.5	0.5
	36–40	84	4.2	0.3	102	5.1	0.4
	41–45	56	2.8	0.2	67	3.4	0.3
	46+	70	3.5	0.3	102	5.1	0.4
International Students	No	1776	87.8	7.1	1927	96.5	7.8
	Yes	246	12.2	1.0	69	3.5	0.3
English as a First Language	Yes	1432	70.8	5.8	1687	84.5	6.8
	No	590	29.2	2.4	309	15.5	1.2
Indigenous	No	1944	96.1	7.8	1928	96.6	7.8
	Yes	47	2.3	0.2	47	2.4	0.2
	Not disclosed	31	1.5	0.1	21	1.1	0.1
Residential Area	Metropolitan areas	1719	85.0	6.9	1675	83.9	6.7
	Provincial areas	275	13.6	1.1	299	15.0	1.2
	Remote areas	14	0.7	0.1	14	0.7	0.1
	International	14	0.7	0.1	7	0.4	0.0
	Invalid or Missing	0	0.0	0.0	1	0.1	0.0
Program Type	Undergraduate	1535	75.9	6.2	1490	74.6	6.0
	Postgraduate	487	24.1	2.0	506	25.4	2.0

⁷The course category ‘Other’ includes curriculum studies, education studies, teacher education, and teacher education vocational.

⁸ Includes candidates who registered from 2016 to 2018. Some unsuccessful candidates from Table 8 are included.

Program Type by Year Level	Undergraduate 1st year	102	5.0	0.4	69	3.5	0.3
	Undergraduate 2nd year	239	11.8	1.0	205	10.3	0.8
	Undergraduate 3rd year	329	16.3	1.3	333	16.7	1.3
	Undergraduate 4th year	625	30.9	2.5	630	31.6	2.5
	Undergrad 5th yr or above	77	3.8	0.3	82	4.1	0.3
	Undergrad graduated	163	8.1	0.7	171	8.6	0.7
	Postgraduate 1st year	150	7.4	0.6	108	5.4	0.4
	Postgraduate 2nd year	158	7.8	0.6	191	9.6	0.8
	Postgraduate 3rd year	16	0.8	0.1	23	1.2	0.1
	Postgraduate 4th year	29	1.4	0.1	36	1.8	0.1
	Postgrad 5th yr or above	33	1.6	0.1	36	1.8	0.1
	Postgraduate graduated	101	5.0	0.4	112	5.6	0.5
Course Category	Early childhood	282	13.9	1.1	281	14.1	1.1
	Primary	811	40.1	3.3	838	42.0	3.4
	Secondary	435	21.5	1.7	410	20.5	1.6
	Special education	6	0.3	0.0	15	0.8	0.1
	Other	488	24.1	2.0	452	22.6	1.8

Table 10 shows the demographic characteristics of the third-attempt candidates in 2018. As for the second-attempt candidates, this cohort tended to be mostly female, undergraduates, and aged 17–25. As for the second-attempt cohort, these categories are more highly represented than in the first-attempt cohort. The proportion of third-attempt candidates who were undergraduates was similar to but lower than that for the second-attempt cohort (71% compared to 75%). The proportion of graduates in the third-attempt cohort (24%) was four times that in the first-attempt cohort, as candidates graduated during the time between test attempts.

Table 10 also shows for literacy that English was not the first language of 38% of the third-attempt candidates, whereas the proportion was only 13% for the first-attempt candidates (as shown in Table 8). For numeracy, English was not the first language of 16% of the third-attempt candidates, similar to the proportion (13%) of the first-attempt candidates. It can also be seen that the proportion of candidates from early childhood courses in the third-attempt cohort was 15%, nearly double the proportion (8%) in the first-attempt cohort.

Table 10: Demographic characteristics of third-attempt candidates⁹

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	559	86.5	2.2	601	91.5	2.4
	Male	87	13.5	0.3	56	8.5	0.2
Age	17–25	412	63.8	1.7	381	58.0	1.5
	26–30	113	17.5	0.5	129	19.6	0.5
	31–35	41	6.3	0.2	45	6.8	0.2
	36–40	33	5.1	0.1	37	5.6	0.1
	41–45	23	3.6	0.1	33	5.0	0.1
	46+	24	3.7	0.1	32	4.9	0.1
International Students	No	530	82.0	2.1	642	97.7	2.6
	Yes	116	18.0	0.5	15	2.3	0.1
English as a First Language	Yes	399	61.8	1.6	553	84.2	2.2
	No	247	38.2	1.0	104	15.8	0.4
Indigenous	No	618	95.7	2.5	623	94.8	2.5
	Yes	15	2.3	0.1	21	3.2	0.1
	Not disclosed	13	2.0	0.1	13	2.0	0.1
Residential Area	Metropolitan areas	544	84.2	2.2	553	84.2	2.2

⁹ Includes candidates who registered from 2016 to 2018. Some unsuccessful candidates from Tables 8 and 9 are included.

	Provincial areas	84	13.0	0.3	95	14.5	0.4
	Remote areas	8	1.2	0.0	8	1.2	0.0
	International	10	1.5	0.0	1	0.2	0.0
Program Type	Undergraduate	462	71.5	1.9	462	70.3	1.9
	Postgraduate	184	28.5	0.7	195	29.7	0.8
Program Type by Year Level	Undergraduate 1st year	7	1.1	0.0	10	1.5	0.0
	Undergraduate 2nd year	77	11.9	0.3	45	6.8	0.2
	Undergraduate 3rd year	50	7.7	0.2	58	8.8	0.2
	Undergraduate 4th year	189	29.3	0.8	208	31.7	0.8
	Undergrad 5th yr or above	40	6.2	0.2	47	7.2	0.2
	Undergrad graduated	99	15.3	0.4	94	14.3	0.4
	Postgraduate 1st year	22	3.4	0.1	15	2.3	0.1
	Postgraduate 2nd year	82	12.7	0.3	70	10.7	0.3
	Postgraduate 3rd year	5	0.8	0.0	8	1.2	0.0
	Postgraduate 4th year	9	1.4	0.0	15	2.3	0.1
	Postgrad 5th yr or above	11	1.7	0.0	18	2.7	0.1
	Postgraduate graduated	55	8.5	0.2	69	10.5	0.3
Course Category	Early childhood	98	15.2	0.4	101	15.4	0.4
	Primary	266	41.2	1.1	302	46.0	1.2
	Secondary	151	23.4	0.6	135	20.5	0.5
	Special education	1	0.2	0.0	2	0.3	0.0
	Other	130	20.1	0.5	117	17.8	0.5

Table 11 shows demographic characteristics of the small number of candidates (157 literacy, 174 numeracy) who were authorised to sit the test four times in 2018. This cohort was mostly female candidates (90%). For literacy, the proportions of candidates in this cohort who were international students (22%) or for whom English was not their first language (41%) were considerably higher than the proportions of the first-attempt cohort (6% and 13% respectively). It was again found that while the proportion of graduates in the first-attempt cohort was low (6%), it had risen to 33% of the fourth-attempt cohort for literacy and 39% for numeracy.

Table 11: Demographic characteristics of fourth-attempt candidates¹⁰

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	141	89.8	0.6	158	90.8	0.6
	Male	16	10.2	0.1	16	9.2	0.1
Age	17–25	102	65.0	0.4	104	59.8	0.4
	26–30	34	21.7	0.1	35	20.1	0.1
	31–35	7	4.5	0.0	9	5.2	0.0
	36–40	4	2.5	0.0	5	2.9	0.0
	41–45	1	0.6	0.0	11	6.3	0.0
	46+	9	5.7	0.0	10	5.7	0.0
International Students	No	122	77.7	0.5	171	98.3	0.7
	Yes	35	22.3	0.1	3	1.7	0.0
English as a First Language	Yes	93	59.2	0.4	149	85.6	0.6
	No	64	40.8	0.3	25	14.4	0.1
Indigenous	No	152	96.8	0.6	157	90.2	0.6
	Yes	4	2.5	0.0	10	5.7	0.0
	Not disclosed	1	0.6	0.0	7	4.0	0.0
Residential Area	Metropolitan areas	132	84.1	0.5	149	85.6	0.6
	Provincial areas	19	12.1	0.1	23	13.2	0.1
	Remote areas	2	1.3	0.0	2	1.1	0.0

¹⁰ Includes candidates who registered from 2016 to 2018. Some unsuccessful candidates from Tables 8–10 are included.

	International	4	2.5	0.0	0	0.0	0.0
Program Type	Undergraduate	104	66.2	0.4	115	66.1	0.5
	Postgraduate	53	33.8	0.2	59	33.9	0.2
Program Type by Year Level	Undergraduate 1st year	0	0.0	0.0	0	0.0	0.0
	Undergraduate 2nd year	21	13.4	0.1	1	0.6	0.0
	Undergraduate 3rd year	3	1.9	0.0	4	2.3	0.0
	Undergraduate 4th year	31	19.7	0.1	45	25.9	0.2
	Undergrad 5th yr or above	17	10.8	0.1	24	13.8	0.1
	Undergrad graduated	32	20.4	0.1	41	23.6	0.2
	Postgraduate 1st year	2	1.3	0.0	3	1.7	0.0
	Postgraduate 2nd year	21	13.4	0.1	18	10.3	0.1
	Postgraduate 3rd year	3	1.9	0.0	1	0.6	0.0
	Postgraduate 4th year	1	0.6	0.0	4	2.3	0.0
	Postgrad 5th yr or above	6	3.8	0.0	6	3.4	0.0
	Postgraduate graduated	20	12.7	0.1	27	15.5	0.1
Course Category	Early childhood	14	8.9	0.1	19	10.9	0.1
	Primary	73	46.5	0.3	78	44.8	0.3
	Secondary	34	21.7	0.1	45	25.9	0.2
	Special education	0	0.0	0.0	0	0.0	0.0
	Other	36	22.9	0.1	32	18.4	0.1

In 2018, a very small number of candidates (11 for literacy, 26 for numeracy) were granted fifth attempts. While the demographic characteristics of the fifth-attempt cohort are presented in Table 12, the numbers are too small to make any meaningful observations.

Table 12: Demographic characteristics of fifth-attempt candidates¹¹

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	10	90.9	0.0	22	84.6	0.1
	Male	1	9.1	0.0	4	15.4	0.0
Age	17–25	4	36.4	0.0	20	76.9	0.1
	26–30	4	36.4	0.0	3	11.5	0.0
	31–35	2	18.2	0.0	2	7.7	0.0
	36–40	1	9.1	0.0	1	3.8	0.0
	41–45	0	0.0	0.0	0	0.0	0.0
	46+	0	0.0	0.0	0	0.0	0.0
International Students	No	11	100.0	0.0	25	96.2	0.1
	Yes	0	0.0	0.0	1	3.8	0.0
English as a First Language	Yes	8	72.7	0.0	19	73.1	0.1
	No	3	27.3	0.0	7	26.9	0.0
Indigenous	No	11	100.0	0.0	24	92.3	0.1
	Yes	0	0.0	0.0	2	7.7	0.0
Residential Area	Metropolitan areas	10	90.9	0.0	23	88.5	0.1
	Provincial areas	1	9.1	0.0	3	11.5	0.0
	Remote areas	0	0.0	0.0	0	0.0	0.0
	International	0	0.0	0.0	0	0.0	0.0
Program Type	Undergraduate	10	90.9	0.0	20	76.9	0.1
	Postgraduate	1	9.1	0.0	6	23.1	0.0
Program Type by Year Level	Undergraduate 1st year	0	0.0	0.0	0	0.0	0.0
	Undergraduate 2nd year	0	0.0	0.0	0	0.0	0.0
	Undergraduate 3rd year	0	0.0	0.0	0	0.0	0.0
	Undergraduate 4th year	2	18.2	0.0	5	19.2	0.0
	Undergrad 5th yr or above	3	27.3	0.0	5	19.2	0.0

¹¹ Includes candidates who registered from 2016 to 2017 only.

	Undergrad graduated	5	45.5	0.0	10	38.5	0.0
	Postgraduate 1st year	0	0.0	0.0	0	0.0	0.0
	Postgraduate 2nd year	0	0.0	0.0	0	0.0	0.0
	Postgraduate 3rd year	1	9.1	0.0	1	3.8	0.0
	Postgraduate 4th year	0	0.0	0.0	0	0.0	0.0
	Postgrad 5th yr or above	0	0.0	0.0	1	3.8	0.0
	Postgraduate graduated	0	0.0	0.0	4	15.4	0.0
Course Category	Early childhood	3	27.3	0.0	2	7.7	0.0
	Primary	4	36.4	0.0	9	34.6	0.0
	Secondary	1	9.1	0.0	9	34.6	0.0
	Special education	0	0.0	0.0	0	0.0	0.0
	Other	3	27.3	0.0	6	23.1	0.0

Table 13 shows the demographic characteristics for the candidates who had achieved no standard at the end of 2018. By the end of 2018, there were 2668 candidates who had not achieved the literacy standard and 2834 candidates who had not achieved the numeracy standard. The demographics of this group are similar to those of the previously described resit cohorts except that this group has the highest proportion of candidates from early childhood courses (19% for literacy, 18% for numeracy).

Table 13: Demographic characteristics of candidates who achieved no standard by the end of 2018

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	2256	84.6	9.1	2557	90.2	10.3
	Male	412	15.4	1.7	277	9.8	1.1
Age	17–25	1791	67.1	7.2	1806	63.7	7.3
	26–30	379	14.2	1.5	413	14.6	1.7
	31–35	177	6.6	0.7	205	7.2	0.8
	36–40	132	4.9	0.5	146	5.2	0.6
	41–45	85	3.2	0.3	113	4.0	0.5
	46+	104	3.9	0.4	151	5.3	0.6
International Students	No	2319	86.9	9.3	2746	96.9	11.0
	Yes	349	13.1	1.4	88	3.1	0.4
English as a First Language	Yes	1829	68.6	7.3	2361	83.3	9.5
	No	839	31.4	3.4	473	16.7	1.9
Indigenous	No	2566	96.2	10.3	2710	95.6	10.9
	Yes	60	2.2	0.2	79	2.8	0.3
	Not disclosed	42	1.6	0.2	45	1.6	0.2
Residential Area	Metropolitan areas	2290	85.8	9.2	2399	84.7	9.6
	Provincial areas	346	13.0	1.4	410	14.5	1.6
	Remote areas	18	0.7	0.1	21	0.7	0.1
	International	13	0.5	0.1	4	0.1	0.0
	Invalid or Missing	1	0.0	0.0	0	0.0	0.0
Program Type	Undergraduate	2110	79.1	8.5	2172	76.6	8.7
	Postgraduate	558	20.9	2.2	662	23.4	2.7
Program Type by Year Level	Undergraduate 1st year	369	13.8	1.5	286	10.1	1.2
	Undergraduate 2nd year	408	15.3	1.6	400	14.1	1.6
	Undergraduate 3rd year	550	20.6	2.2	595	21.0	2.4
	Undergraduate 4th year	450	16.9	1.8	528	18.6	2.1
	Undergrad 5th yr or above	77	2.9	0.3	99	3.5	0.4
	Undergrad graduated	256	9.6	1.0	264	9.3	1.1
	Postgraduate 1st year	216	8.1	0.9	227	8.0	0.9
	Postgraduate 2nd year	125	4.7	0.5	151	5.3	0.6
	Postgraduate 3rd year	25	0.9	0.1	28	1.0	0.1
	Postgraduate 4th year	32	1.2	0.1	43	1.5	0.2
	Postgrad 5th yr or above	36	1.3	0.1	42	1.5	0.2
	Postgraduate graduated	124	4.6	0.5	171	6.0	0.7

Course Category	Early childhood	495	18.6	2.0	514	18.1	2.1
	Primary	1022	38.3	4.1	1139	40.2	4.6
	Secondary	526	19.7	2.1	568	20.0	2.3
	Special education	14	0.5	0.1	19	0.7	0.1
	Other	611	22.9	2.5	594	21.0	2.4

These candidates who had achieved no standard by the end of 2018 had up to five attempts at the test, as shown by Table 14. It is expected that some of these candidates will resit the test again in 2019.

Table 14: Number of attempts by candidates who achieved no standard by the end of 2018

Component	Year of registration	At end of	Number of 1-attempt candidates	Number of 2-attempt candidates	Number of 3-attempt candidates	Number of 4-attempt candidates	Number of 5-attempt candidates
Literacy	2016	2017	150	66	28	13	0
	2016	2018	0	11	14	23	5
	2017	2018	517	339	239	76	3
	2018	2018	1644	403	61	2	0
Numeracy	2016	2017	174	90	51	15	0
	2016	2018	0	13	30	37	12
	2017	2018	527	369	257	71	4
	2018	2018	1667	447	77	2	0

Table 15 groups the location of testing in capital cities, regional cities and remote proctoring. It shows that 24% of candidates in 2018 chose to do so by remote proctoring compared to 18% in 2016 and 40% in 2017 (when remote proctoring was the only medium available in test window 1). A more detailed breakdown by individual test centre may be found in Appendix 1.

Table 15: Number and proportion of first-attempt candidates who participated at test centres and by remote proctoring

Location of Testing	First Attempt			
	Literacy		Numeracy	
	N	%	N	%
Test Centres	16 692	75.6	16 689	75.8
– Capital Cities	14 097	63.9	14 113	64.1
– Regional Cities	2595	11.8	2576	11.7
Remote Proctoring	5374	24.4	5322	24.2
Total	22 066	100	22 011	100

Table 16 shows how resit candidates were distributed by location of testing in 2018. As in 2016 and 2017, remote proctoring was increasingly used by resit candidates in 2018. For example, in the literacy component, while 24% of first-attempt candidates chose to use remote proctoring in 2018, this rose to 31% of second-attempt candidates, 40% of third-attempt candidates and 47% of fourth-attempt candidates. The pattern was similar for numeracy. Table 16 also shows that the percentage of resit candidates who sat the test at test centres in regional cities in 2018 was reasonably consistent by attempt, ranging between 7% and 10% for literacy and between 8% and 12% for numeracy.

Table 16: Number and proportion of resit candidates who participated at test centres and by remote proctoring

Location of Testing	Second Attempt				Third Attempt				Fourth Attempt				Fifth Attempt			
	Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Test Centres	1396	69.0	1342	67.2	390	60.4	404	61.5	84	53.5	91	52.3	7	63.6	15	57.7
– Capital Cities	1189	58.8	1110	55.6	346	53.6	345	52.5	72	45.9	77	44.3	5	45.5	14	53.8
– Regional Cities	207	10.2	232	11.6	44	6.8	59	9.0	12	7.6	14	8.0	2	18.2	1	3.8
Remote Proctoring	626	31.0	654	32.8	256	39.6	253	38.5	73	46.5	83	47.7	4	36.4	11	42.3
Total	2022	100	1996	100	646	100	657	100	157	100	174	100	11	100	26	100

2.2 Demographic Characteristics of Candidates by Test Windows

In 2016, the number of candidates was greatest in test window 1. The reverse was true in 2017, most likely because remote proctoring was the only medium offered in TW1. In 2018, there was very little difference in the number and composition of the candidates presenting at each test window, for both literacy and numeracy. In 2018, more candidates participated in test windows 2 and 3 than in test windows 1 and 4, 1576 more for literacy and 1558 for numeracy. Subgroups generally followed the same pattern with some exceptions. For literacy, the number of undergraduates participating in test windows 3 and 4 was greater than those participating in test windows 1 and 2. Undergraduates in their fourth year, however, mostly participated in test windows 1 and 2. Postgraduates in their second year also participated mostly in test windows 1 and 2. Unlike candidates in other course categories, the number of candidates in early childhood courses who participated in test windows 3 and 4 exceeded those participating in test windows 1 and 2.

Table 17: Demographic characteristics of candidates by test windows – literacy

Characteristic	Category	TW1		TW2		TW3		TW4	
		N	%	N	%	N	%	N	%
Gender	Female	4338	74.8	5110	74.8	4870	76.0	4377	74.7
	Male	1461	25.2	1718	25.1	1535	24.0	1484	25.3
	Indeterminate/intersex	3	0.1	4	0.1	2	0.0	0	0.0
Age	17–25	3742	64.5	4521	66.2	4299	67.1	3959	67.5
	26–30	829	14.3	1016	14.9	944	14.7	804	13.7
	31–35	464	8.0	497	7.3	460	7.2	392	6.7
	36–40	308	5.3	306	4.5	321	5.0	288	4.9
	41–45	239	4.1	231	3.4	211	3.3	223	3.8
	46+	220	3.8	261	3.8	172	2.7	195	3.3
International Students	No	5565	95.9	6332	92.7	5825	90.9	5457	93.1
	Yes	237	4.1	500	7.3	582	9.1	404	6.9
English as a First Language	Yes	5121	88.3	5792	84.8	5383	84.0	4950	84.5
	No	681	11.7	1040	15.2	1024	16.0	911	15.5
Indigenous	No	5611	96.7	6609	96.7	6185	96.5	5666	96.7
	Yes	94	1.6	113	1.7	109	1.7	84	1.4
	Not disclosed	97	1.7	110	1.6	113	1.8	111	1.9
Residential Area	Metropolitan areas	4720	81.4	5783	84.6	5259	82.1	4956	84.6
	Provincial areas	1012	17.4	974	14.3	1068	16.7	844	14.4
	Remote areas	52	0.9	43	0.6	45	0.7	41	0.7
	International	17	0.3	29	0.4	35	0.5	20	0.3
	Invalid or Missing	1	0.0	3	0.0	0	0.0	0	0.0
Program Type	Undergraduate	3932	67.8	4289	62.8	4357	68.0	4272	72.9
	Postgraduate	1870	32.2	2543	37.2	2050	32.0	1589	27.1
Program Type by Year Level	Undergraduate first year	131	2.3	483	7.1	672	10.5	837	14.3
	Undergraduate second yr	505	8.7	736	10.8	878	13.7	769	13.1
	Undergraduate third year	782	13.5	1183	17.3	1478	23.1	1647	28.1
	Undergraduate fourth yr	2077	35.8	1472	21.5	974	15.2	710	12.1
	Undergraduate fifth yr +	181	3.1	175	2.6	131	2.0	64	1.1
	Undergraduate graduated	256	4.4	240	3.5	224	3.5	245	4.2
	Postgraduate first year	609	10.5	1499	21.9	1187	18.5	880	15.0
	Postgraduate second year	791	13.6	577	8.4	454	7.1	344	5.9
	Postgraduate third year	90	1.6	76	1.1	61	1.0	55	0.9
	Postgraduate fourth year	84	1.4	97	1.4	80	1.2	83	1.4
	Postgraduate fifth year +	92	1.6	101	1.5	73	1.1	49	0.8
	Postgraduate graduated	204	3.5	193	2.8	195	3.0	178	3.0
Course Category	Early childhood	470	8.1	561	8.2	609	9.5	582	9.9
	Primary	2498	43.1	2579	37.7	2435	38.0	2282	38.9
	Secondary	1987	34.2	2521	36.9	2224	34.7	1982	33.8
	Special education	25	0.4	27	0.4	25	0.4	69	1.2
	Other	822	14.2	1144	16.7	1114	17.4	946	16.1

The observations and patterns described above for literacy candidates across the four test windows are also pertinent for numeracy, as shown in Table 18.

Table 18: Demographic characteristics of candidates by test windows – numeracy

Characteristic	Category	TW1		TW2		TW3		TW4	
		N	%	N	%	N	%	N	%
Gender	Female	4387	75.7	5175	75.4	4870	76.7	4422	75.5
	Male	1403	24.2	1681	24.5	1481	23.3	1437	24.5
	Indeterminate/intersex	3	0.1	3	0.0	1	0.0	1	0.0
Age	17–25	3725	64.3	4557	66.4	4195	66.0	3899	66.5
	26–30	851	14.7	1022	14.9	947	14.9	819	14.0
	31–35	439	7.6	493	7.2	479	7.5	414	7.1
	36–40	309	5.3	302	4.4	309	4.9	305	5.2
	41–45	243	4.2	232	3.4	229	3.6	224	3.8
	46+	226	3.9	253	3.7	193	3.0	199	3.4
International Students	No	5597	96.6	6294	91.8	5911	93.1	5590	95.4
	Yes	196	3.4	565	8.2	441	6.9	270	4.6
English as a First Language	Yes	5179	89.4	5804	84.6	5506	86.7	5139	87.7
	No	614	10.6	1055	15.4	846	13.3	721	12.3
Indigenous	No	5591	96.5	6625	96.6	6134	96.6	5663	96.6
	Yes	103	1.8	118	1.7	109	1.7	85	1.5
	Not disclosed	99	1.7	116	1.7	109	1.7	112	1.9
Residential Area	Metropolitan areas	4717	81.4	5830	85.0	5231	82.4	4917	83.9
	Provincial areas	1009	17.4	961	14.0	1052	16.6	884	15.1
	Remote areas	51	0.9	39	0.6	44	0.7	44	0.8
	International	15	0.3	26	0.4	25	0.4	15	0.3
	Invalid or Missing	1	0.0	3	0.0	0	0.0	0	0.0
Program Type	Undergraduate	3931	67.9	4276	62.3	4317	68.0	4261	72.7
	Postgraduate	1862	32.1	2583	37.7	2035	32.0	1599	27.3
Program Type by Year Level	Undergraduate first year	127	2.2	541	7.9	675	10.6	814	13.9
	Undergraduate second yr	495	8.5	718	10.5	826	13.0	733	12.5
	Undergraduate third year	777	13.4	1129	16.5	1493	23.5	1656	28.3
	Undergraduate fourth yr	2082	35.9	1479	21.6	960	15.1	743	12.7
	Undergraduate fifth yr +	191	3.3	176	2.6	125	2.0	78	1.3
	Undergraduate graduated	259	4.5	233	3.4	238	3.7	237	4.0
	Postgraduate first year	608	10.5	1521	22.2	1135	17.9	855	14.6
	Postgraduate second year	781	13.5	583	8.5	461	7.3	351	6.0
	Postgraduate third year	88	1.5	74	1.1	61	1.0	62	1.1
	Postgraduate fourth year	88	1.5	106	1.5	85	1.3	82	1.4
	Postgraduate fifth year +	98	1.7	95	1.4	75	1.2	58	1.0
	Postgraduate graduated	199	3.4	204	3.0	218	3.4	191	3.3
Course Category	Early childhood	470	8.1	552	8.0	594	9.4	582	9.9
	Primary	2476	42.7	2606	38.0	2441	38.4	2280	38.9
	Secondary	2012	34.7	2497	36.4	2216	34.9	1991	34.0
	Special education	31	0.5	30	0.4	22	0.3	74	1.3
	Other	804	13.9	1174	17.1	1079	17.0	933	15.9

Table 19 and Table 20 show the number and proportion of candidates participating in test centres and by remote proctoring in each test window for literacy and numeracy respectively.

It can be seen that the proportion of candidates sitting in test centres in capital cities averaged 61% for test windows 1 to 3 but rose to approximately 71% for test window 4, because test centres in regional cities were not provided. The percentage of candidates sitting the test by remote proctoring rose steadily from 22% in test window 1 to 28% in test window 4. A more detailed breakdown by test centre can be found in Appendix 2.

Table 19: Number and proportion of candidates in test centres and by remote proctoring by test window – literacy

Location of Testing	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Test Centres	4511	77.7	5259	77.0	4601	71.8	4198	71.6
– Capital Cities	3621	62.4	4101	60.0	3789	59.1	4198	71.6
– Regional Cities	890	15.3	1158	16.9	812	12.7	NA	NA
Remote Proctoring	1291	22.3	1573	23.0	1806	28.2	1663	28.4
Total	5802	100.0	6832	100.0	6407	100.0	5861	100.0

Table 20: Number and proportion of candidates in test centres and by remote proctoring by test window – numeracy

Location of Testing	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Test Centres	4488	77.5	5278	76.9	4607	72.5	4168	71.1
– Capital Cities	3585	61.9	4109	59.9	3797	59.8	4168	71.1
– Regional Cities	903	15.6	1169	17.0	810	12.8	NA	NA
Remote Proctoring	1305	22.5	1581	23.1	1745	27.5	1692	28.9
Total	5793	100.0	6859	100.0	6352	100.0	5860	100.0

2.3 Accessibility and Accommodations

In 2018, 277 candidates (1.2%) required special testing conditions compared to 0.7% in 2017. Table 21 indicates the number of accommodations made for the eight most common conditions. Significant increases in requests to accommodate anxiety disorder and dyslexia are evident, more so for numeracy. A complete list of conditions follows the table.

Table 21: Largest accommodation groups

Condition	Literacy			Numeracy		
	2016	2017	2018	2016	2017	2018
Anxiety disorder (inc. panic attacks)	3	28	30	5	31	50
Dyslexia	9	28	48	9	25	57
Diabetes	11	8	12	10	9	13
Epilepsy/Seizures	1	5	3	2	6	3
Attention Hyper Activity Disorder	1	5	6	1	5	6
Hearing impairment	2	5	1	1	4	5
Visual impairment	6	4	7	6	5	4
Dyscalculia	NA	NA	NA	2	7	2

Types of conditions:

- Acquired Brain Injury
- Anxiety, Depression, Panic Attacks
- Asperger Syndrome (High functioning – ASD)
- Asthma
- Autoimmune Disorder
- Auditory Processing Disorder and Visual–Perceptual Dysfunction (Scotopic Sensitivity/Irlen Syndrome)
- Auditory–Verbal Memory Disorder / Language Learning Disability
- Autism Spectrum Disorder
- Bilateral Sensorineural Hearing Loss
- Brain Tumour
- Chronic Back Pain
- Congenital Nystagmus (Eye Disorder)
- Cranial Diabetes Insipidus

- Cystic Fibrosis
- Degenerative Spondylosis
- Diabetes
- Dyslexia, Dyscalculia, ADD
- Endometriosis
- Epilepsy
- Fibromyalgia
- Herniated Discs and Fractured Vertebrae
- High Blood Pressure and Hypoglycaemia
- Hip Dysphasia
- Hypothyroidism
- Idiopathic Intracranial Hypertension
- Low Working Memory
- Meniere's disease
- Migraine
- Obsessive Compulsive Disorder and Pronounced Exam Phobia
- Pigmentary Retinopathy with High Myopia and Astigmatism
- Profoundly Deaf / Auslan User
- PTSD
- Recovery from Stroke/Cancer
- Rheumatoid Arthritis
- Supraventricular Tachycardia
- Systemic Lupus Erythematosus
- Temporary physical conditions – e.g. broken leg, broken wrist, back injury
- Tinnitus
- Visual Impairment / Legally Blind

Types of accommodations granted:

- Emergency Action Plan (for Epilepsy – seizures)
- Extra time (20 minutes or more per test component)
- Management of hearing impairment for test sessions conducted by remote proctoring (communication via chat box only)
- Permission to bring blood-insulin monitor, epipen, food and drink relating to medical condition
- Permission to bring support aids (heat pack, cushion, ergonomic mouse and mobility aids)
- Permission to have a support person in a nearby room
- Permission to take medication (e.g. ventolin inhaler and diabetes/glucose monitoring kit)
- Permission to stand and stretch
- Permission to magnify text and to wear Irlen Spectral Filters / coloured glasses
- Permission to use a calculator provided by the test centre
- Permission to use listening device or screen reader
- Permission to use text-to-speech software
- Permission to wear headgear during the test session
- Permission to wear ear plugs or headphones and listen to music during the test session
- Provision of gender-specific remote proctors
- Provision of additional working-out paper
- Provision of an Auslan interpreter
- Provision of a small group test environment (no more than 5 candidates per test room)
- Provision of ergonomic office chair or adjustable desk
- Provision of extra chair to rest injured leg

- Rest breaks (5 mins or more per test component)
- Seated near bathroom
- Seated at the front of the test room (for hearing loss) and other special seating requests for the front and back of the test room, and near the aisle
- Seated in a quiet room
- Special support for candidates with limited mobility (i.e. limit time standing in the registration queue)
- Test supervisor to provide written assistance during the instructions component of the test sessions.

The online accessible versions of the test were used once for literacy and once for numeracy in 2018.

3. CANDIDATE PERFORMANCE

This section describes the performance of candidates who participated in the test in 2018. The analysis breaks the cohort of candidates into two groups: first-attempt candidates (the majority) and those who did not achieve the standard at their first attempt and resat the test. It presents the distributions of candidate performance overall, by subscale and by candidates' collected demographic information: gender, age group, program type, program type by year level, course category, and location of testing.

3.1 Scale Score Distributions

Figure 1 and Figure 2 present the distributions of first-attempt candidate performance on the literacy component and numeracy component respectively. The vertical line in each figure represents the standard for that component of the test.

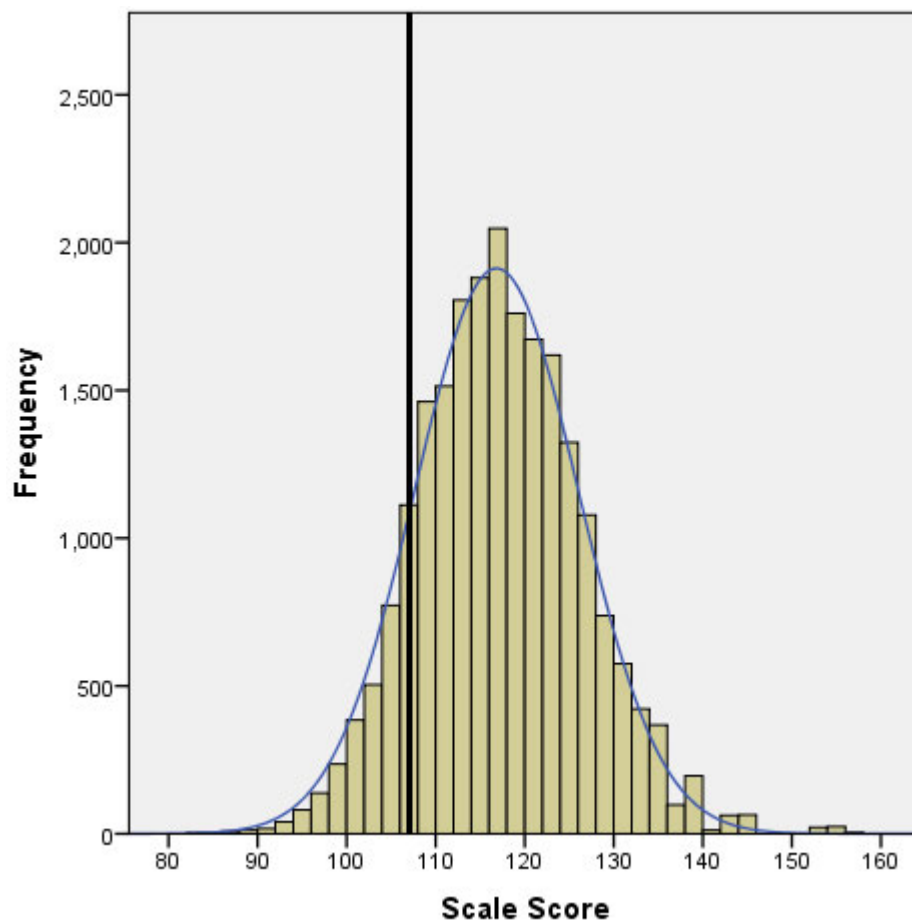


Figure 1: Distribution of candidate scale scores for literacy¹²

¹² The scale score of the literacy standard is 107.

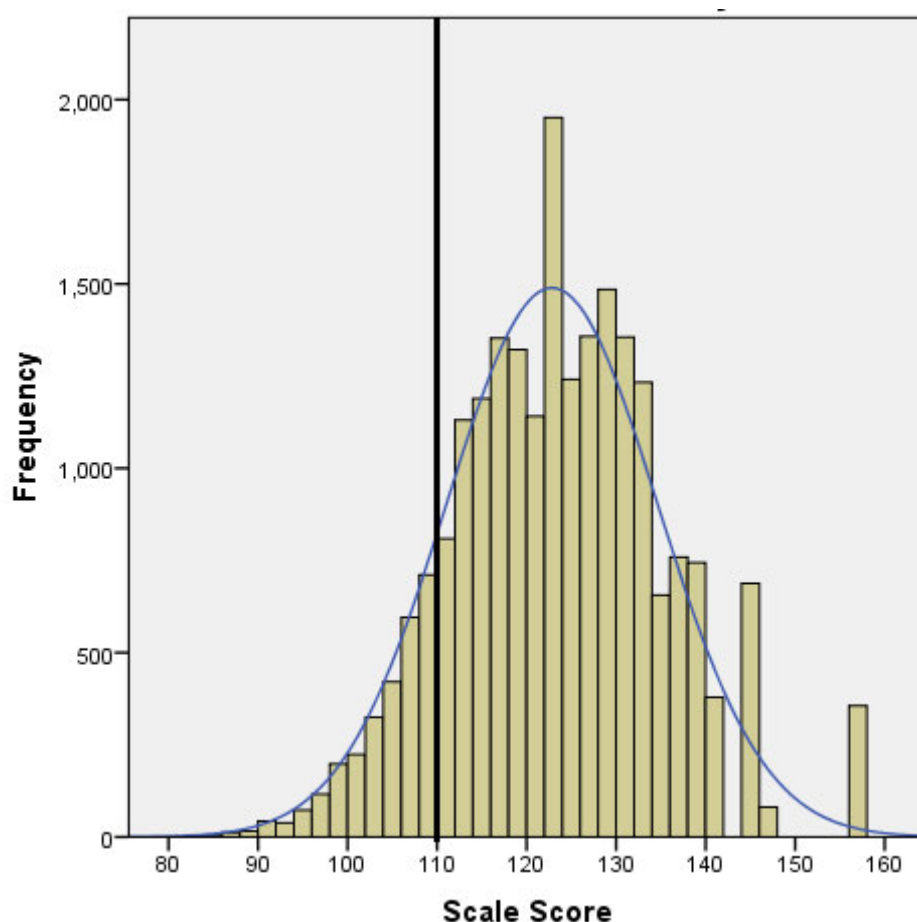


Figure 2: Distribution of candidate scale scores for numeracy¹³

Figure 1 and Figure 2 show that scores in both tests are approximately normally distributed and that the tests spread candidates acceptably across the score scales. For both literacy and numeracy, the majority of candidates achieved scale scores above the standard at their first attempt. It can be seen that a proportion of candidates achieved scale scores below the standard at their first attempt.

3.2 Candidate Scale Scores by Subscales and Subgroups

Table 22 shows the performance of first-attempt candidates in 2018. It shows the number (N) of candidates, the mean scale scores and standard deviation of the scale scores, overall and by subscale. The pass rates for the literacy and numeracy components for this cohort of candidates are also shown in this table. The overall mean scale score for literacy was 116.8 (similar to 117.5 in 2016 and 117.0 in 2017) with a pass rate of 87.5% (down from 93.3% in 2016 and 89.2% in 2017). The overall mean scale score for numeracy was 122.8 (similar to 122.4 in 2016 and 123.0 in 2017) with a pass rate of 87.4 (down from 92.4% in 2016 and 90.0 in 2017). The decline in the pass rates in literacy and numeracy for first-attempt candidates is because the revised standards applied for the whole of 2018 compared to only the second half of 2017.

Table 22 also shows the performance of candidates on each subscale. The performance of candidates by subscale was similar to the performance of candidates on the whole test, except for the numeracy subscale 'calculator not available'. As for 2016 and 2017, the average performance of candidates on the numeracy subscale, 'calculator not available', was lower than the average performance on the numeracy subscale 'calculator available'. The difference in mean scale scores for each of these numeracy subscales

¹³ The scale score of the numeracy standard is 110.

in 2018 was 2.5 scale score points compared to 3.5 scale score points in 2017. Scale score frequency distributions for the candidates who participated in the tests are shown in Appendix 3.

Table 22: Candidate performance overall and by subscale for first-attempt candidates

Component	Whole test and subscale	N	Mean	S.D.	Pass Rate
Literacy	Overall	22 066	116.8	9.2	87.5
	Reading		117.1	9.7	
	Technical skills of writing		116.2	10.7	
Numeracy	Overall	22 011	122.8	11.8	87.4
	Number & algebra		122.5	13.1	
	Measurement & geometry		122.6	12.2	
	Statistics & probability		122.6	11.6	
	Calculator available		123.1	11.3	
	Calculator not available		120.6	14.8	

Table 23 shows the number of candidates (N), mean scale score, standard deviation of the scale scores, and pass rate by demographic characteristics. Performance of any subgroup with a sample size of less than 10 was not reported.

Table 23: Performance by demographic characteristics for first-attempt candidates

Characteristic	Category	Literacy			Numeracy		
		N	Mean	Pass Rate	N	Mean	Pass Rate
Gender	Female	16324	116.3	86.0	16272	121.2	84.7
	Male	5733	118.4	91.6	5731	127.6	95.1
	Indeterminate/intersex	9 ¹⁴	-	-	8	-	-
Age	17–25	14581	115.7	86.4	14563	122.1	87.0
	26–30	3170	118.4	89.5	3185	124.1	88.3
	31–35	1645	119.1	89.6	1639	124.5	88.7
	36–40	1101	119.5	89.7	1080	124.7	88.4
	41–45	824	120.5	91.1	817	125.1	89.1
	46+	745	119.5	88.9	727	122.5	84.0
International Students	No	20740	117.1	88.4	20627	122.6	87.0
	Yes	1326	112.1	72.6	1384	125.8	93.4
English as a First Language	Yes	19314	117.5	89.7	19220	122.9	87.7
	No	2752	112.1	71.9	2791	122.5	85.1
Indigenous	No	21346	116.8	87.5	21281	122.9	87.4
	Yes	334	114.6	83.2	335	119.2	80.9
	Not disclosed	386	117.8	87.6	395	123.5	89.9
Residential Area	Metropolitan areas	18313	116.8	87.1	18295	122.9	87.2
	Provincial areas	3519	116.8	89.2	3486	122.4	88.1
	Remote areas	157	118.5	89.2	154	123.5	88.3
	International	73	117.8	87.7	73	123.8	91.8
	Invalid or Missing	4	-	-	3	-	-
Program Type	Undergraduate	14739	115.3	85.3	14698	121.1	85.6
	Postgraduate	7327	120.0	91.9	7313	126.3	91.0
Program Type by Year Level	Undergraduate first year	2014	114.0	79.8	2078	121.1	85.4
	Undergraduate second year	2551	114.9	83.9	2521	120.7	84.2
	Undergraduate third year	4708	115.5	87.2	4660	121.2	86.0
	Undergraduate fourth year	4386	116.1	88.0	4376	121.6	87.2
	Undergraduate fifth year or above	414	116.1	86.2	412	121.2	83.7
	Undergraduate graduated	666	112.4	74.9	651	118.2	78.6
	Postgraduate first year	4001	120.2	92.5	3993	127.3	92.6
	Postgraduate second year	1905	121.1	93.6	1897	126.5	91.7
	Postgraduate third year	257	120.9	91.1	252	125.1	88.9
	Postgraduate fourth year	305	118.4	91.1	306	123.7	86.9
	Postgraduate fifth year or above	265	117.8	89.1	265	123.8	86.8
	Postgraduate graduated	594	116.1	84.5	600	122.2	82.8
Course Category	Early childhood	1825	112.5	73.5	1795	117.7	74.4

¹⁴ Mean scale score and pass rate are not displayed for any subgroup with < 10 candidates.

Primary	8640	116.4	88.0	8576	121.9	86.9
Secondary	8093	119.3	92.5	8117	126.1	92.6
Special education	139	115.3	89.9	140	119.1	85.7
Other	3369	114.4	81.7	3383	120.4	83.0

The t-test and Cohen's *d* for effect size were used to determine if group mean scale scores were significantly different for first-attempt candidates. Only differences where $p \leq 0.05$ and $d > 0.2$ are reported here as significant.

Table 23 shows that the male candidates significantly outperformed female candidates in both literacy and numeracy. This represents a change from 2016 and 2017 where the difference was significant only for numeracy. For the 2018 cohort, the literacy mean scale score of male candidates (118.4) was significantly higher (effect size 0.24) than the literacy mean scale score of female candidates (116.3). The pass rate of the female candidates on the literacy component (86.0%) was considerably lower than that of the male candidates (91.6%). For numeracy, the difference was even greater. The numeracy mean scale score of the male candidates (127.6) was significantly higher (effect size 0.56) than that of the female candidates (121.2). The pass rate of the female candidates on the numeracy component (84.7%) was considerably lower than that of the male candidates (95.1%).

For both literacy and numeracy, achievement on the test tended to increase with the age of the candidates, but as for 2017 the pattern was more evident for literacy. For literacy, the youngest group of candidates aged 17–25 (mean scale score 115.7) achieved significantly lower (effect size 0.36) than candidates aged over 25 (119.1). As for 2017, the numeracy mean scale score of candidates aged over 25 was greater than that of those aged 17–25 (124.2 to 122.1); however, the difference was not significant. A possibly emerging pattern is the relatively lower numeracy achievement of the 46+ age group. The numeracy mean scale score of the 46+ age group was similar to that of the 17–25 age group in both 2017 and 2018.

As for 2017, the mean scale score of international candidates (112.1) for literacy was significantly lower (effect size 0.55) than the mean scale score of other candidates (117.1). The reverse was true for numeracy. For numeracy, the mean scale score of international candidates (125.8) was significantly higher (effect size 0.28) than the mean scale score of other candidates (122.6). This is a change from 2017, where the difference in numeracy mean scale scores was not significant.

As for 2017, the mean scale score for literacy of candidates for whom English was a first language (117.5) was significantly higher (effect size 0.59) than the mean scale score for literacy of other candidates (112.1). However, again as for 2017, the same was not true for numeracy where the mean scale scores (122.9 and 122.5 respectively) were not significantly different.

As for 2017, for both literacy and numeracy, the mean scale score of candidates who identified as Aboriginal or Torres Strait Islander was significantly lower (effect size 0.24 and 0.32 respectively) than for other candidates. For literacy, the mean scale scores were 114.6 (up from 113.8 in 2017) and 116.8 respectively; and for numeracy, 119.2 (up from 118.0 in 2017) and 122.9 respectively. However, it is worth noting that the pass rates of first-attempt candidates who identified as Aboriginal or Torres Strait Islander were still relatively high at 83% (up from 81% in 2017) for literacy and 83% for numeracy. For literacy, the pass rate of candidates identifying as Aboriginal or Torres Strait Islander was higher than that of international candidates (73%) and candidates for whom English was not a first language (72%).

Residential postcode data were used to place candidates into three main categories: metropolitan, provincial and remote. Where postcodes could not be matched to an indicator they were categorised as missing or invalid. As for 2017, for both literacy and numeracy, there was little difference in achievement by Australian residential areas (metropolitan, provincial and remote). While in 2017, for both literacy and numeracy, the mean scale scores of candidates with an international residential postcode were significantly higher than those of candidates who gave an Australian residential postcode, this was not true in 2018. However, over the longer period 2016–2018, it was still true that candidates with an

international residential postcode had a significantly higher mean scale score than candidates with Australian residential postcodes, for both literacy and numeracy (effect sizes between 0.2 and 0.4).

As for 2016 and 2017, for both literacy and numeracy, the mean scale scores of postgraduate candidates were significantly higher (effect size 0.3 and 0.4 respectively) than for undergraduate candidates. The difference in mean scale scores was approximately 5 scale score points for both components: 120.0 and 115.3 for literacy and 126.3 and 121.1 for numeracy respectively.

For literacy, the mean scale scores of undergraduate candidates increased with the year of the course, ranging from 114.0 for first-year undergraduates to 116.1 for fifth-year undergraduates. There was no such pattern for numeracy. For postgraduate candidates, the reverse pattern was true for both literacy and numeracy and mean scale scores declined as year of course increased.

For both literacy and numeracy, as for 2016 and 2017, the mean scale scores of candidates in the secondary education course category were significantly higher than those of candidates in the other four course categories (effect sizes between 0.3 and 0.7). In turn, the mean scale scores of candidates in the primary and special education course categories were significantly higher than those of candidates in the early childhood course category for both literacy and numeracy (effect sizes 0.2). The mean scale score of candidates in the 'other' course category was equivalent to that of candidates in the primary and special education categories for both literacy and numeracy. Their mean scale score was significantly higher than candidates in the early childhood category for both literacy and numeracy (effect sizes 0.2).

Table 24 summarises the significant differences in mean scale scores for the eight demographic characteristics.

Table 24: Subgroups showing significantly higher mean scale scores

Characteristic	Literacy	Numeracy
Gender	males	
Age	above 25 years (except 46+)	none
International	domestic	international
Language background	English as first language	none
Indigeneity	non-Indigenous	
Residential location	none	none
Program type	postgraduate	
Course category	secondary > primary & spec. ed. > early childhood	

In addition to comparing cohorts by mean scale scores, Figure 3 to Figure 6 display scale score distributions for first-attempt candidates in 2018. The left panel of each figure shows literacy scale score distributions and the right panel of each figure shows numeracy scale score distributions. The horizontal lines in each figure represent the standard scale score for each component of the test.

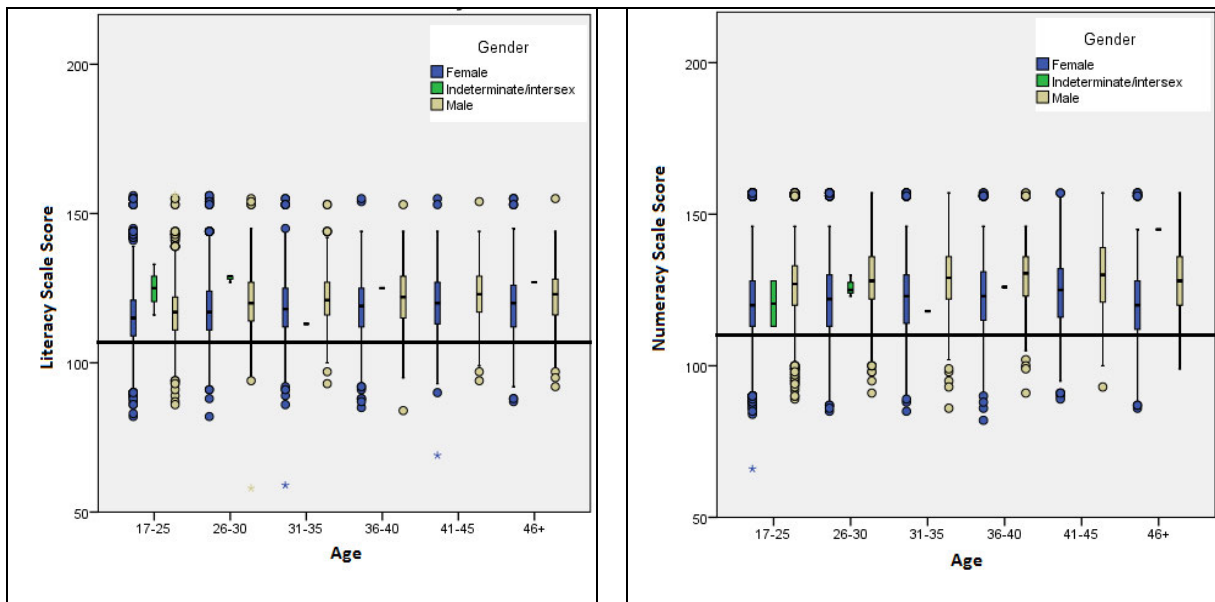


Figure 3: Score distribution by gender and age

Figure 3 shows that, for all age groups, the difference in achievement between male candidates and female candidates is more pronounced for numeracy than for literacy. However, in each age category and for male or female, there are candidates who achieve well above the standard.

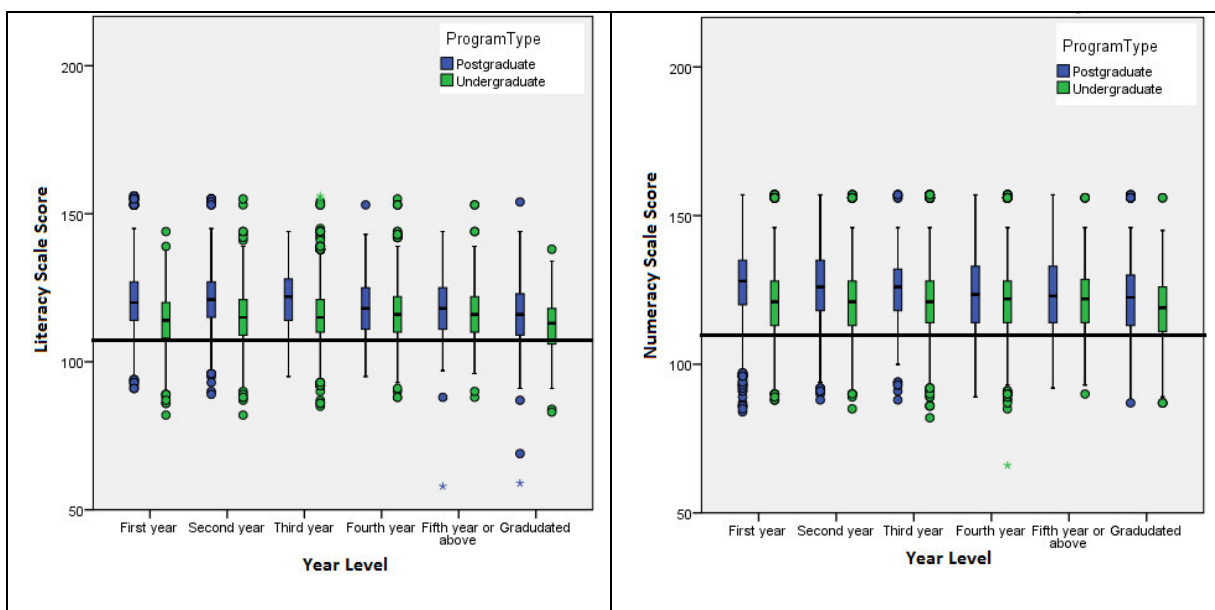


Figure 4: Score distribution by program type and year level

Figure 4 shows that, for all year levels, the difference in achievement between postgraduate candidates and undergraduate candidates is similar for literacy and numeracy, with the achievement of postgraduate candidates slightly higher than that of undergraduate candidates. As for gender, at each year level and in each program type, there are candidates who achieve well above the standard.

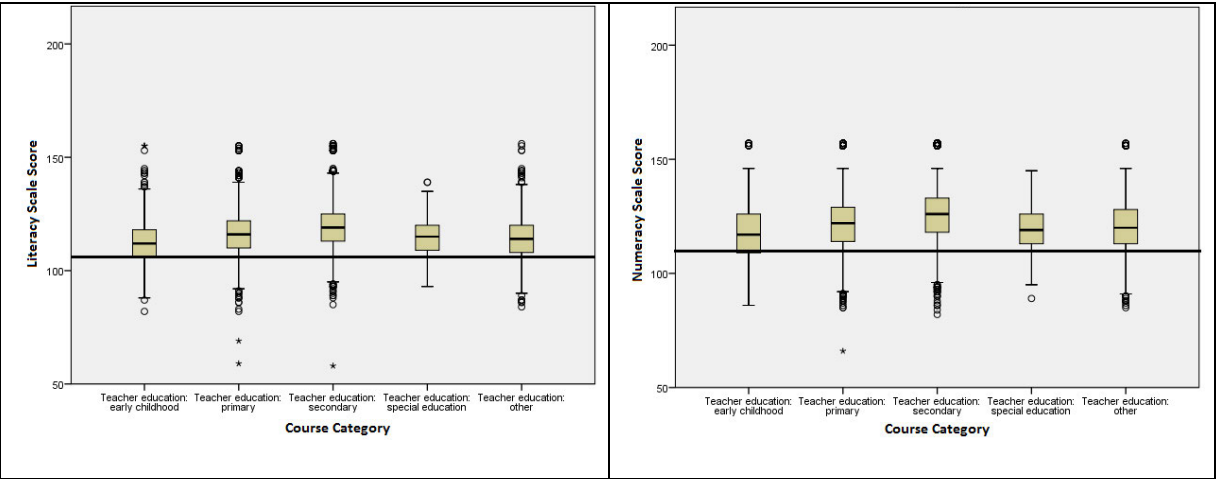


Figure 5: Score distribution by course category

Figure 5 shows that, although candidates in secondary education courses achieve highest in both literacy and numeracy, there are candidates who achieve well above the standard in each of the other courses. For example, for both literacy and numeracy, the achievement of the top 25% of candidates in the early childhood category is broadly equivalent to the top 50% of candidates in the secondary category.

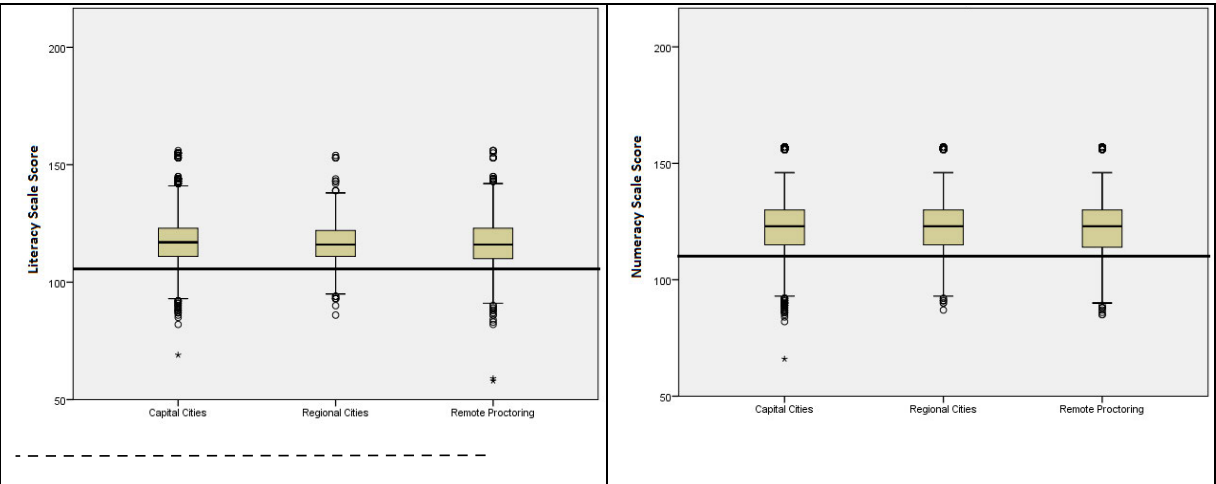


Figure 6: Score distribution by location of testing

Figure 6 shows that for test centres in capital cities and regional cities, and for remote proctoring, for both literacy and numeracy, the distributions are very similar and there are candidates in each category who achieve well above the standard. Figure 6 also shows that for all three categories, there are candidates who did not achieve the standard at their first attempt.

3.3 Candidate performance by test centres and remote proctoring

Table 25 shows the performance by test centres and remote proctoring. As for 2016 and 2017, the candidates at the Hobart test centre had the highest mean scale score (123.0 compared to 120.8 in 2017 and 123.2 in 2016) on the literacy component of the test. The Hobart cohort also had the highest mean scale score (127.2) on the numeracy component.

Compared to 2017, the 2018 mean scale scores for the Darwin, Hobart and Wagga Wagga cohorts were more than two scale score points higher for both literacy and numeracy. In particular, the increase achieved by the Darwin cohort was nearly five scale score points higher for both literacy and numeracy. For numeracy, the achievement of the 2018 cohorts at the Adelaide CB and Townsville centres were 5.1 and 3.6 scale score points, respectively, below their 2017 mean scale scores.

In addition to comparing the mean scale scores, it can be seen that the regional centres of Cairns, Mildura, Wagga Wagga and Wollongong had relatively high pass rates that exceeded 95% for literacy, with Mildura also achieving a pass rate of 95% for numeracy.

It is of course necessary to interpret the findings above with caution given the relatively small number of candidates at each centre.

It can be seen from the last three rows of Table 25 that the performance of candidates using remote proctoring was very similar to the performance of candidates who took tests in capital city test centres and regional city test centres, with less than one scale score point separating the mean scale scores of the three groups for both test components. Candidates who sat the test in regional test centres had a higher pass rate for both literacy and numeracy than candidates who sat by remote proctoring or in capital cities. This indicates that the distribution of the scale scores of the cohort sitting in regional test centres is more homogeneous, with less spread than the distributions of the other two cohorts.

Table 25: Performance by test centres and remote proctoring

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Test Centre	Adelaide CBD	1226	115.9	9.2	84.1	1229	120.5	11.8	83.1
	Albury	56	118.1	8.0	92.9	63	122.7	10.1	92.1
	Armidale (NSW)	90	117.2	9.1	90.0	90	122.4	10.4	91.1
	Ballarat	276	114.4	8.3	84.1	275	122.1	11.3	88.0
	Bathurst	74	117.6	9.2	90.5	74	123.5	11.1	87.8
	Brisbane CBD	2315	117.7	8.7	91.1	2289	122.8	11.1	90.0
	Bundaberg	39	114.4	6.7	87.2	38	121.3	10.6	86.8
	Cairns	72	120.5	7.7	95.8	71	125.2	9.6	94.4
	Canberra CBD	310	118.6	9.8	88.4	308	124.1	12.8	88.0
	Darwin	54	119.9	11.3	90.7	54	122.5	13.3	87.0
	Gold Coast	186	115.2	8.4	86.6	182	121.6	10.8	85.7
	Hobart	113	123.0	9.4	97.3	107	127.2	12.7	91.6
	Melbourne CBD	5770	115.9	9.3	84.6	5823	122.2	11.9	85.6
	Mildura	42	115.7	5.4	95.2	41	123.3	9.4	95.1
	Newcastle	471	117.9	7.9	92.8	466	124.4	11.1	91.4
	Parramatta	440	114.3	8.4	84.8	434	121.2	11.7	83.9
	Penrith	174	114.9	9.2	83.3	171	122.4	12.8	83.0
	Perth CBD	1163	119.9	9.3	92.3	1145	125.9	12.0	91.7
	Special testing conditions	4	-	-	-	4	-	-	-
	Sunshine Coast/Maroochy	196	117.2	8.2	91.3	185	124.3	11.0	91.9
	Sydney CBD	3142	117.5	9.0	89.1	3154	123.9	11.6	89.4
	Townsville	69	115.9	7.5	91.3	67	120.9	8.6	91.0
	Wagga Wagga	47	118.3	7.7	97.9	51	125.5	11.0	94.1
	Warrnambool	65	117.4	10.0	92.3	62	122.9	13.1	87.1
	Wodonga	34	117.9	7.0	94.1	31	122.9	14.9	87.1
	Wollongong	264	117.9	7.3	96.6	275	125.7	12.0	93.1
	Remote Proctoring	5374	116.6	9.4	86.5	5322	122.5	11.9	86.2
	Capital Cities	14097	117.0	9.3	87.5	14113	122.9	11.8	87.6
	Regional Cities	2595	116.4	8.4	89.6	2576	123.1	11.4	88.9

3.4 Candidates who did not achieve the standard after one attempt

Table 26 shows the number and proportion of candidates who did not achieve the test standard in 2018 after one attempt. The proportion of first-attempt candidates who did not achieve the standard on the literacy component was 12.5% (up from 10.8% in 2017 and 6.7% in 2016). The proportion of first-attempt candidates who did not achieve the standard on the numeracy component was 12.6% (up from 10.0% in 2017 and 7.6% in 2016). The percentage of first-attempt candidates who did not achieve either standard in 2017 was 5.8% (up from 4.5% in 2017 and 2.7% in 2016).

Table 26: Number and proportion of first-attempt candidates who did not achieve the standard

	Number	Percentage
Candidates who did not achieve the literacy standard	2763	12.5
Candidates who did not achieve the numeracy standard	2779	12.6
Candidates who did not achieve the literacy and the numeracy standard	1227	5.8

3.5 Performance of Resit Candidates

Table 27 shows the performance of candidates who had multiple attempts at the test, overall and by subscale. Table 27 includes 95 candidates who first attempted literacy in 2016, 131 candidates who first attempted numeracy in 2016, 1199 candidates who first attempted literacy in 2017 and 1132 candidates who first attempted numeracy in 2017. As expected, the performance of resit candidates was lower than the performance of the majority of candidates who achieved the standard at their first attempt. For example, for the 2022 second-attempt candidates for literacy in 2018, their overall mean scale score was 106.6 with a pass rate of 51.3% (compared to 117.0 and 89.5% for first-attempt candidates in the period 2016–2018). For the 1996 second-attempt candidates for numeracy in 2018, their overall mean scale score for numeracy was 108.6 with a pass rate of 45.3% (compared to 122.8 and 89.6% for first-attempt candidates in the period 2016–2018).

In 2016, the pass rates of resit candidates in numeracy were much lower than the pass rates in literacy. However, this was not the case in 2017, where the pass rates of resit candidates were similar for both components. In 2018, however, the pass rate of candidates at their second and third attempts were again higher for literacy than for numeracy. The pass rate of candidates in their third attempt was 46.0% for literacy (compared to 39.9% in 2017 and 76.0% in 2016) and 36.7% for numeracy (compared to 41.3% in 2017 and 37.5% in 2016). As for previous years, it can be seen from Table 27 that pass rates declined with each attempt.

For the literacy subscales, the mean scale score of resit candidates was similar for reading and technical skills of writing; however, third- and fourth-attempt candidates tended to do relatively better on technical skills of writing than on reading. For the numeracy subscales, as for previous years, the mean scores of resit candidates on the ‘number & algebra’ and ‘calculator not available’ subscales were lower than the mean scores of resit candidates on the other three numeracy subscales, suggesting these are the numeracy skills where resit candidates need most support. Despite greater familiarity with the format of the test and time for additional study, the resit cohorts showed a decline in overall mean scale score by resit. The decline is not surprising given that the proportion of candidates who have not achieved the standard increases for each successive resit cohort.

Table 27: Resit candidate performance overall and by subscale

Component	Whole test and subscale	Second Attempt			Third Attempt			Fourth Attempt			Fifth Attempt		
		(Resit 1)			(Resit 2)			(Resit 3)			(Resit 4)		
		N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Literacy	Overall	2022	106.6	51.3	646	106.0	46.0	157	104.8	33.1	11	105.4	27.3
	Reading		106.6			105.6			104.2			105.0	
	Technical skills of writing		106.6			106.6			105.8			105.5	
Numeracy	Overall	1996	108.6	45.3	657	107.7	36.7	174	107.2	31.0	26	109.4	38.5
	Number & algebra		107.1			106.1			105.9			107.8	
	Measurement & geometry		109.1			108.4			107.8			110.1	
	Statistics & probability		110.7			109.7			108.8			111.9	
	Calculator available		109.8			108.5			107.9			110.1	
	Calculator not available		103.9			104.6			104.8			106.3	

Approximately two-thirds of second-attempt candidates (64% for literacy, down from 73% in 2017; and 63% for numeracy, down from 69% in 2017) had their second attempt within 4 months. Approximately three-quarters of second-attempt candidates (77% for literacy, down from 90% in 2017; and 77% for numeracy, down from 87% in 2017) had their second attempt within 6 months. A small number of candidates waited until 12 or 18 months after the first attempt before resitting. Regression analysis was performed to understand the effect of resitting the test after different time periods. The analysis indicated that there was a very weak *negative* relationship between change in test scores and the length of time between first and second attempts for literacy, and no relationship for numeracy. It can be seen from Table 28 that for both literacy and numeracy, but particularly for numeracy, there is very little difference in the mean score change between first and second attempts regardless of the time taken between the attempts.

Table 28: Change in scale score between first and second attempts by time

Component	Mean score change (scale score points)				
	Less than 2 mths	From 2 to <4 mths	From 4 to <6 mths	More than 6 mths	All
Literacy	4.4	4.1	3.9	3.8	4.0
Numeracy	5.1	4.9	4.9	4.8	4.9

Overall, each second-attempt cohort improved their scales scores (4.0 points for literacy and 4.9 points for numeracy). However, after taking performance (Band level *after* second attempt) into account it can be seen from Table 29 that the change in scale scores was not uniform. The mean score change of the least able cohort (those with second-attempt scores below Band 1) was negative (6 scale score points for literacy and 2 scale score points for numeracy). That is, the mean scale score of the candidates below Band 1 was lower at second attempt than it was at first attempt. In general, however, the higher the performance of the second-attempt candidates, the more they were able to improve their scores between their first and second attempts.

Table 29: Change in scale score between first and second attempts by performance (Band)

Component	Mean score change (scale score points)				
	Below Band 1	Band 1	Band 2	Band 3 and above	All
Literacy	-6.1	0.8	6.9	24.4	4.0
Numeracy	-1.9	2.2	8.2	23.9	4.9

The findings above suggest that it is more likely that the change in score between first and second attempts is explained more by performance than it is by the time between testing.

Additional analysis investigated the impact of resit candidates on pass rates. Table 30 categorises candidates by their most recent attempt at the end of 2018. While 13 083 candidates registered in 2016, 446 of them who were unsuccessful did not resit in 2016. Rather they chose to resit in 2017 and 2018. Table 30 shows that for literacy, the pass rates in 2018 were 92.2% for no-resit candidates and ranged from 62% to 34% for resit candidates. For numeracy, the pass rates in 2018 were similar to literacy; that is, 92.0% for no-resit candidates and ranging from 56% to 33% for resit candidates. Overall, in 2018 the performance of resit candidates 'reduced' the pass rate by 3.6% in literacy (from 92.2% to 88.6%) and by 4.2% in numeracy (from 92.0% to 87.8%). The impact of resit candidates on the pass rate in 2018 was greater than in 2017 and 2016 primarily because 2018 was the first complete year in which the revised standards were applied, affecting a greater number of candidates.

Table 30: Candidate performance by number of test sittings in 2016–18

Component	Year	Number of Test Sittings	Number of Unique Candidates	Standard Achieved	Standard Not Achieved	Pass Rate
Literacy	2016	1 (no resits)	12 360	12 210	150	98.8
		2	257	230	27	89.5
		3	20	19	1	95.0
		All	12 637	12 459	178	98.6
	2017	1 (no resits)	21 379	20 862	517	97.6
		2	948	797	151	84.1
		3	184	118	66	64.1
		4	28	14	14	50.0
		All	22 539	21 791	748	96.7
	2018	1 (no resits)	20 946	19 302	1644	92.2
		2	1679	1038	641	61.8
		3	572	297	275	51.9
		4	152	52	100	34.2
		5	11	3	8	27.3
		All	23 360	20 692	2668	88.6
Numeracy	2016	1 (no resits)	12 256	12 082	174	98.6

	2	266	224	42	84.2
	3	27	16	11	59.3
	4	2	2	0	100.0
	All	12551	12324	227	98.2
2017	1 (no resits)	21640	21113	527	97.6
	2	853	684	169	80.2
	3	209	140	69	67.0
	4	34	17	17	50.0
	All	22736	21954	782	96.6
2018	1 (no resits)	20898	19231	1667	92.0
	2	1612	904	708	56.1
	3	576	241	335	41.8
	4	162	54	108	33.3
	5	26	10	16	38.5
	All	23274	20440	2834	87.8

4. CANDIDATE PERFORMANCE BY TEST WINDOWS

This section presents candidate performance by test window. The performance of resit candidates is also described by test window.

4.1 Distributions of Candidate Scale Scores by Subscale and Test Window

Table 31 shows the performance of all candidates (first-attempt and resits) who sat the test for each test window in 2018. The overall mean scale scores for literacy declined steadily from test window 1 (116.1) to test window 4 (114.9). A similar pattern occurred for numeracy, declining from test windows 1 and 2 (122.0 and 122.4) down to test window 4 (119.9). This is likely to be an ongoing annual pattern, probably due to the later test windows having a higher proportion of resitting candidates.

The performance of candidates by subscale was similar to the average performance of candidates on the whole test, except that for literacy the average performance on the 'technical skills of writing' subscale was marginally lower than the average performance on the 'reading' subscale for each test window. Similarly for numeracy, the average performance on the 'calculator not available' subscale was consistently significantly lower than the overall numeracy score, indicating that the candidates found this subscale relatively more difficult.

Table 31: Candidate performance by test window, overall and by subscale

Component	Test Window	Whole test and subscale	N	Mean	S.D.	Pass Rate
Literacy	TW1	Overall	5802	116.1	9.3	85.1
		Reading		116.3	9.7	
		Technical skills of writing		115.6	10.7	
	TW2	Overall	6832	115.9	9.4	84.5
		Reading		116.1	9.9	
		Technical skills of writing		115.5	10.7	
	TW3	Overall	6407	115.5	9.7	82.0
		Reading		115.7	10.2	
		Technical skills of writing		115.2	11.2	
	TW4	Overall	5861	114.9	9.3	80.7
		Reading		115.4	9.9	
		Technical skills of writing		114.0	10.4	
Numeracy	TW1	Overall	5793	122.0	12.3	84.2
		Number & algebra		121.2	13.6	
		Measurement & geometry		122.3	12.7	
		Statistics & probability		121.9	12.1	
		Calculator available		122.3	11.6	
		Calculator not available		119.2	15.4	
	TW2	Overall	6859	122.4	12.2	84.4
		Number & algebra		121.4	13.5	
		Measurement & geometry		122.8	12.5	
		Statistics & probability		122.4	12.1	
		Calculator available		122.7	11.6	
		Calculator not available		119.7	15.4	
	TW3	Overall	6352	120.2	12.2	80.2
		Number & algebra		120.2	13.6	
		Measurement & geometry		119.6	12.5	

		Statistics & probability		120.2	11.8	
		Calculator available		120.6	11.8	
		Calculator not available		118.2	15.4	
	TW4	Overall	5860	119.9	12.0	79.8
		Number & algebra		119.8	13.6	
		Measurement & geometry		119.2	12.2	
		Statistics & probability		120.2	11.7	
		Calculator available		120.3	11.8	
		Calculator not available		117.8	15.2	

Appendix 4 provides a detailed analysis of candidate performance by demographic characteristics and test windows. Candidate performance of any subgroup with a sample size less than 10 was not reported.

Appendix 5 provides a detailed analysis of performance by test centres and remote proctoring by test window. The distributions of candidate performance within a subgroup were similar across test windows.

Table 32 shows the proportion of candidates by test window who did not achieve the standard in 2018 after one or more attempts. In keeping with the patterns in Table 31, for both literacy and numeracy, the percentage of candidates who did not achieve the standard increased steadily from test window 1 to test window 4, from 14.9% to 19.3% for literacy and from 15.8% to 20.2% for numeracy.

Table 32: Number and proportion of candidates who did not achieve the standard by test window

Test Window	Component	Number	% of Candidates
TW1	Literacy	866	14.9
	Numeracy	918	15.8
	Both ¹⁵	348	6.9
TW2	Literacy	1062	15.5
	Numeracy	1068	15.6
	Both	395	6.7
TW3	Literacy	1153	18.0
	Numeracy	1255	19.8
	Both	466	8.7
TW4	Literacy	1129	19.3
	Numeracy	1182	20.2
	Both	443	9.1

4.2 Performance of Resit Candidates by Test Window

Table 33a and Table 33b show the performance of resit candidates overall and by subscale, and by test attempt, for each test window. In each test window, the overall mean scale scores of resit candidates who had a second attempt (resit 1) were close to but below the standard in both literacy (107) and numeracy (110).

For literacy, the candidates who sat the test for the third time (resit 2) had similar but slightly lower overall mean scores to those candidates who sat the test for the second time. The pass rates of the third-attempt (resit 2) candidates also tended to be lower than the second-attempt (resit 1) candidates.

For numeracy, the overall mean scores of candidates who sat the numeracy component for the third time were also similar to but slightly lower than the overall mean scales scores of those candidates who sat the test for the second time. The same was true for pass rates, except for test window 3, where the pass

¹⁵ A subset of literacy and numeracy.

rate was nearly 20% lower. As for 2016 and 2017, it can be seen that the difference in mean scale scores for the 'calculator available' and the 'calculator not available' subscales was relatively large.

Compared to 2017, where between 57% and 62% of third-attempt candidates achieved the literacy standard, in 2018 these rates declined to between 41% and 55%, reflecting the application of the revised standard in all four testing windows in 2018.

In 2018, while there were more fourth-attempt candidates than in 2017, it is not possible to reach reliable conclusions about this cohort by test window because of the small numbers. It is not surprising that mean scores and pass rates should decrease by test window number and by resit number. As the more able candidates progressively achieve the standard they leave the resit pool.

Table 33a: Resit candidate performance by test window, overall and by subscale for literacy

Component	Test Window	Whole test and subscale	Second Attempt (Resit 1)			Third Attempt (Resit 2)			Fourth Attempt (Resit 3)			Fifth Attempt (Resit 4)		
			N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Literacy	TW1	Overall	477	106.7	52.4	112	106.7	55.4	17	105.9	41.2			
		Reading		106.6			106.3			105.6				
		Technical skills of writing		107.0			107.6			106.8				
	TW2	Overall	472	107.1	57.0	168	106.7	48.2	38	105.6	34.2	5	-	-
		Reading		107.0			105.9			104.9			-	
		Technical skills of writing		107.4			108.1			106.6			-	
	TW3	Overall	485	106.2	47.0	179	105.3	41.3	41	103.5	31.7	5	-	-
		Reading		106.2			104.8			102.6			-	
		Technical skills of writing		106.4			106.1			105.4			-	
	TW4	Overall	588	106.4	49.3	187	105.6	42.8	61	104.9	31.1	1	-	-
		Reading		106.6			105.7			104.4			-	
		Technical skills of writing		105.9			105.3			105.4			-	

Table 34b: Resit candidate performance by test window, overall and by subscale for numeracy

Component	Test Window	Whole test and subscale	Second Attempt (Resit 1)			Third Attempt (Resit 2)			Fourth Attempt (Resit 3)			Fifth Attempt (Resit 4)		
			N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Numeracy	TW1	Overall	470	108.8	46.2	106	107.2	35.8	33	107.3	33.3	2	-	-
		Number & algebra		107.0			105.3			106.4			-	
		Measurement & geometry		109.2			109.2			107.6			-	
		Statistics & probability		110.9			108.3			108.2			-	
		Calculator available		110.2			107.9			108.1			-	
		Calculator not available		103.1			104.1			105.0			-	
	TW2	Overall	444	109.0	46.2	170	108.8	43.5	46	108.7	39.1	4	-	-
		Number & algebra		106.9			106.8			106.4			-	
		Measurement & geometry		110.0			110.2			110.4			-	
		Statistics & probability		110.7			110.6			110.7			-	
		Calculator available		110.3			109.8			110.0			-	
		Calculator not available		103.6			105.1			103.8			-	
	TW3	Overall	469	107.7	40.5	175	106.2	22.9	56	106.0	23.2	5	-	-
		Number & algebra		106.4			105.5			105.2			-	
		Measurement & geometry		108.1			105.8			106.6			-	
		Statistics & probability		109.7			108.0			106.8			-	
		Calculator available		108.8			106.8			106.0			-	
		Calculator not available		103.1			103.4			105.9			-	
	TW4	Overall	613	108.9	47.6	206	108.4	43.2	39	107.3	30.8	15	109.1	26.7
		Number & algebra		107.7			106.6			105.8			107.7	
		Measurement & geometry		109.2			108.8			106.9			109.4	
		Statistics & probability		111.1			111.1			110.0			112.7	
		Calculator available		109.9			109.1			107.9			110.1	
		Calculator not available		105.5			105.5			104.2			105.1	

5. PHASE 4 ITEM TRIAL ANALYSIS

5.1 In-test trialling

Following review by the Expert Groups, 90 literacy items and 85 numeracy items were trialled within the live tests. These items were placed in small clusters (5-item clusters for literacy, and 4-item 'calculator available' clusters and a 1-item 'calculator not available' cluster for numeracy). Candidates were unaware of the location of these trial items. The trial items did not contribute to a candidate's score. The items were trialled in multiple test windows until sufficient candidates had attempted them. In this way, robust trial item estimates were obtained to enable selection of new, balanced clusters for refreshment of the tests in test window 3 and test window 4 in 2018.

5.2 Trial item analysis

Of the 90 literacy items, 84 had acceptable psychometric properties. Of 85 numeracy items, 84 had acceptable properties. Table 35 shows that the acceptable Phase 4 trial items were well-targeted by difficulty, with most items achievable by candidates in Band 2: At and above the standard and in Band 3: Clearly above the standard. A small number are achievable by candidates above Band 3 and in Band 1: Below the standard, as required by the test construct. A small number of items (2 literacy, 2 numeracy) were too hard or too easy to be of any use in refreshing the test or other uses, such as for the emergency test or as sample items.

Table 35: Distribution of Phase 4 trial items by Band

Achievable by candidates ...	Number of literacy items	Number of numeracy items
well above Band 3	1	1
above Band 3	6	9
in Band 3: Clearly above the standard	35	31
in Band 2: At and above the standard	32	35
in Band 1: Below the standard	9	7
below Band 1	1	1
Total	84	84

5.3 Differential item functioning

During the item development and revision phase, avoiding items that might favour one subgroup of candidates over another is attempted. Despite this, it is normal for a proportion of items to show differential item functioning (DIF).

DIF analysis was performed on all trial items. Only analysis where subgroup size exceeds 50 candidates can be reported reliably. On many occasions, no obvious content or context bias is observable. Investigating reasons for a particular item showing DIF for a particular group involves looking for an explanatory connection between actual characteristics of the item and assumed or posited characteristics of the group.

It is often not possible to withhold all items showing DIF from the live tests, so the approach is to attempt to 'balance' the tests accordingly and thereby minimise the likelihood of any test bias. Selected items with DIF are spread across the clusters. No candidate attempts all clusters so no candidate is required to attempt all items showing DIF.

Table 36 shows the number of Phase 4 items showing differential item functioning. Using data from test windows 3 and 4 in 2018 meant that there were an insufficient number (<50) of candidates to reliably report DIF for Indigenous candidates, international candidates, English not as a first language candidates and regional and remote candidates. The data from test window 1, 2019, will be added to the DIF analysis before items are selected to refresh the test for test window 3 in 2019.

For both literacy and numeracy, the DIF was well-balanced for most variables except for Age where there were more items favouring candidates aged 26+ years.

Items showing DIF are investigated for unfair content and where this is found to exist the items are not selected. Usually, this is not the case and the DIF is performance related; that is, the favoured subgroup is simply better at the skills being assessed for a variety of reasons. To minimise differential test functioning, DIF ‘cancelling’ methodology is applied at the cluster formation stage. That is, items showing DIF are paired with items showing DIF in the opposite direction. In this way, clusters are well-balanced and the tests from which the clusters are created are fair.

Table 36: Differential item functioning

Variable	Favours	Number of literacy items	Number of numeracy items
Age	17–25 years	1	2
	26+ years	4	5
Course Category	Early childhood & primary	2	1
	Secondary	1	1
Gender	Female	3	5
	Male	6	6
Program Type	Postgraduate	2	1
	Undergraduate	1	3

The detailed DIF analysis may be found in Appendix 6.

6. PHASE 5 TEST DEVELOPMENT

During 2018, 95 Phase 5 literacy items (66 Reading and 33 Technical Skills of Writing) and 123 Phase 5 numeracy items mapped against the Assessment Framework were developed. The items were reviewed by the Experts Group in February 2019 and revised based upon reviewers' feedback. A small proportion were retired. A selection of at least 60 literacy items and at least 60 numeracy items will be in-test trialled in test windows 3 and 4 of 2019 and test window 1 of 2020. A selection of these will be used to refresh the test in 2020.

7. CONCLUSION

The test was successfully administered in four test windows in all Australian states and territories in nearly 50 metropolitan and regional testing centres and by remote proctoring to nearly 25 000 candidates. Another set of new items was successfully trialled enabling the test to be refreshed and a secure emergency test to be created.

Item difficulty and targeting of the new set of trial items against the framework was such that equivalent test clusters can be created. Differential item functioning was found to be manageable ensuring that unbiased clusters can be created in order to refresh the test in mid-2019.

In 2018, the revised standards were applied in all four of the 2018 test windows. Of the candidates who first registered in 2018, 90.4% had achieved the literacy standard and 90.0% had achieved the numeracy standard. Over the three years of testing, 93.9% of candidates had achieved the literacy standard and 93.4% of candidates had achieved the numeracy standard.

8. REFERENCES

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9. APPENDICES

Appendix 1: Proportion of candidates by test centre and by attempt

Table 37 shows the number and proportion of candidates participating at each test centre and by remote proctoring. In 2018, 51% of first-attempt candidates (up from 45% in 2017) sat the test at just three test centres: Melbourne CBD, Sydney CBD and Brisbane CBD, compared to 76% in 2016. One reason for the variation in the percentage of candidates at the three CBD testing centres was because remote proctoring was the only medium available in test window 1 in 2017. It can be seen that the proportion of candidates choosing remote proctoring increased steadily by test attempt from 24% up to 47%. The proportions in Sydney and Melbourne test centres stayed reasonably constant by test attempt, suggesting that resitting candidates who chose remote proctoring for their resits were mainly based in the regions.

Table 37: Number and proportion of candidates who participated by test centre

Test Centre	First Attempt				Second Attempt				Third Attempt				Fourth Attempt				Fifth Attempt			
	Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Adelaide CBD	1226	5.6	1229	5.6	57	2.8	49	2.5	8	1.2	9	1.4	1	0.6	2	1.1	0	-	0	-
Albury	56	0.3	63	0.3	5	0.2	7	0.4	1	0.2	1	0.2	0	-	0	-	0	-	0	-
Armidale (NSW)	90	0.4	90	0.4	3	0.1	5	0.3	1	0.2	2	0.3	0	-	0	-	0	-	0	-
Ballarat	276	1.3	275	1.2	35	1.7	29	1.5	4	0.6	8	1.2	1	0.6	1	0.6	0	-	0	-
Bathurst	74	0.3	74	0.3	7	0.3	5	0.3	2	0.3	3	0.5	2	1.3	2	1.1	0	-	0	-
Brisbane CBD	2315	10.5	2289	10.4	93	4.6	108	5.4	22	3.4	36	5.5	5	3.2	7	4.0	0	-	2	7.7
Bundaberg	39	0.2	38	0.2	0	-	0	-	1	0.2	1	0.2	0	-	1	0.6	0	-	0	-
Cairns	72	0.3	71	0.3	5	0.2	5	0.3	1	0.2	3	0.5	0	-	0	-	0	-	0	-
Canberra CBD	310	1.4	308	1.4	23	1.1	21	1.1	2	0.3	3	0.5	0	-	0	-	0	-	0	-
Darwin	54	0.2	54	0.2	5	0.2	4	0.2	1	0.2	2	0.3	0	-	0	-	0	-	0	-
Gold Coast	186	0.8	182	0.8	18	0.9	21	1.1	1	0.2	3	0.5	0	-	0	-	0	-	0	-
Hobart	113	0.5	107	0.5	1	0.0	7	0.4	0	-	1	0.2	0	-	0	-	0	-	0	-
Melbourne CBD	5770	26.1	5823	26.5	677	33.5	606	30.4	225	34.8	191	29.1	50	31.8	43	24.7	2	18.2	8	30.8
Mildura	42	0.2	41	0.2	3	0.1	4	0.2	1	0.2	0	-	0	-	0	-	0	-	0	-
Newcastle	471	2.1	466	2.1	29	1.4	40	2.0	8	1.2	8	1.2	1	0.6	3	1.7	0	-	1	3.8
Parramatta	440	2.0	434	2.0	55	2.7	63	3.2	15	2.3	19	2.9	2	1.3	3	1.7	1	9.1	0	-
Penrith	174	0.8	171	0.8	7	0.3	12	0.6	2	0.3	2	0.3	2	1.3	1	0.6	1	9.1	0	-
Perth CBD	1163	5.3	1145	5.2	46	2.3	54	2.7	7	1.1	9	1.4	0	-	2	1.1	0	-	0	-
Remote Proctoring	5374	24.4	5322	24.2	626	31.0	654	32.8	256	39.6	253	38.5	73	46.5	83	47.7	4	36.4	11	42.3
STC	4	0.0	4	0.0	2	0.1	1	0.1	3	0.5	0	-	0	-	0	-	0	-	0	-
Sunshine Cst/Maroochy	196	0.9	185	0.8	14	0.7	16	0.8	1	0.2	5	0.8	0	-	2	1.1	0	-	0	-
Sydney CBD	3142	14.2	3154	14.3	285	14.1	260	13.0	78	12.1	94	14.3	16	10.2	23	13.2	3	27.3	4	15.4
Townsville	69	0.3	67	0.3	7	0.3	8	0.4	0	-	0	-	0	-	0	-	0	-	0	-
Wagga Wagga	47	0.2	51	0.2	3	0.1	3	0.2	0	-	1	0.2	1	0.6	0	-	0	-	0	-
Warrnambool	65	0.3	62	0.3	0	-	1	0.1	0	-	1	0.2	0	-	0	-	0	-	0	-
Wodonga	34	0.2	31	0.1	1	0.0	4	0.2	0	-	1	0.2	0	-	0	-	0	-	0	-

Wollongong	264	1.2	275	1.2	15	0.7	9	0.5	6	0.9	1	0.2	3	1.9	1	0.6	0	-	0	-
Total	22066	100	22011	100	2022	100	1996	100	646	100	657	100	157	100	174	100	11	100	26	100

Appendix 2: Proportion of candidates by test centre and by test window

Table 38 and Table 39 show the number and proportion of candidates participating in each test centre in test windows 1–4 for literacy and for numeracy respectively. It can be seen that some test centres in some locations were not used for some test windows.

Outside the capital cities, the regional test centres with more than 200 candidates were Parramatta, Newcastle, Ballarat, Wollongong, Sunshine Coast/Maroochydoore and Gold Coast. The centres with fewer than 50 candidates were Mildura, Bundaberg and Wodonga.

Table 38: Number of candidates in test centres by test windows – literacy

Test Centre	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Adelaide CBD	172	3.0	174	2.5	373	5.8	573	9.8
Albury	33	0.6	29	0.4	0	-	0	-
Armidale (NSW)	40	0.7	37	0.5	17	0.3	0	-
Ballarat	97	1.7	121	1.8	98	1.5	0	-
Bathurst	28	0.5	27	0.4	30	0.5	0	-
Brisbane CBD	603	10.4	625	9.1	466	7.3	741	12.6
Bundaberg	20	0.3	0	-	20	0.3	0	-
Cairns	0	-	38	0.6	40	0.6	0	-
Canberra CBD	72	1.2	89	1.3	96	1.5	78	1.3
Darwin	20	0.3	20	0.3	20	0.3	0	-
Gold Coast	60	1.0	88	1.3	57	0.9	0	-
Hobart	47	0.8	47	0.7	20	0.3	0	-
Melbourne CBD	1535	26.5	1952	28.6	1698	26.5	1539	26.3
Mildura	14	0.2	0	-	32	0.5	0	-
Newcastle	202	3.5	154	2.3	153	2.4	0	-
Parramatta	174	3.0	210	3.1	129	2.0	0	-
Penrith	0	-	186	2.7	0	-	0	-
Perth CBD	286	4.9	402	5.9	293	4.6	235	4.0
Remote Proctoring	1291	22.3	1573	23.0	1806	28.2	1663	28.4
STC	1	0.0	4	0.1	0	-	4	0.1
Sunshine Cst/Maroochy	70	1.2	95	1.4	46	0.7	0	-
Sydney CBD	885	15.3	788	11.5	823	12.8	1028	17.5
Townsville	40	0.7	36	0.5	0	-	0	-
Wagga Wagga	23	0.4	8	0.1	20	0.3	0	-
Warrnambool	0	-	19	0.3	46	0.7	0	-
Wodonga	0	-	0	-	35	0.5	0	-
Wollongong	89	1.5	110	1.6	89	1.4	0	-
Total	5802	100	6832	100	6407	100	5861	100

Table 39: Number of candidates in test centres by test windows – numeracy

Test Centre	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Adelaide CBD	172	3.0	176	2.6	371	5.8	570	9.7
Albury	37	0.6	34	0.5	0	-	0	-
Armidale (NSW)	40	0.7	39	0.6	18	0.3	0	-
Ballarat	96	1.7	119	1.7	98	1.5	0	-
Bathurst	30	0.5	24	0.3	30	0.5	0	-
Brisbane CBD	606	10.5	626	9.1	464	7.3	746	12.7
Bundaberg	20	0.3	0	-	20	0.3	0	-
Cairns	0	-	39	0.6	40	0.6	0	-
Canberra CBD	75	1.3	90	1.3	91	1.4	76	1.3
Darwin	20	0.3	20	0.3	20	0.3	0	-
Gold Coast	62	1.1	88	1.3	56	0.9	0	-
Hobart	46	0.8	46	0.7	23	0.4	0	-
Melbourne CBD	1495	25.8	1961	28.6	1708	26.9	1507	25.7
Mildura	13	0.2	0	-	32	0.5	0	-
Newcastle	209	3.6	156	2.3	153	2.4	0	-
Parramatta	175	3.0	215	3.1	129	2.0	0	-
Penrith	0	-	186	2.7	0	-	0	-
Perth CBD	285	4.9	396	5.8	296	4.7	233	4.0
Remote Proctoring	1305	22.5	1581	23.1	1745	27.5	1692	28.9
STC	1	0.0	2	0.0	0	-	2	0.0
Sunshine Cst/Maroochy	68	1.2	95	1.4	45	0.7	0	-
Sydney CBD	885	15.3	792	11.5	824	13.0	1034	17.6
Townsville	40	0.7	35	0.5	0	-	0	-
Wagga Wagga	25	0.4	10	0.1	20	0.3	0	-
Warrnambool	0	-	19	0.3	45	0.7	0	-
Wodonga	0	-	0	-	36	0.6	0	-
Wollongong	88	1.5	110	1.6	88	1.4	0	-
Total	5793	100	6859	100	6352	100	5860	100

Appendix 3: Score Frequency Distribution**Table 40: Literacy score frequency distribution of first-attempt candidates**

Scale Score	Frequency	Percentile
58	1	0.0
59	1	0.0
69	1	0.0
82	2	0.0
83	1	0.0
84	1	0.0
85	1	0.0
86	4	0.1
87	4	0.1
88	7	0.1
89	5	0.1
90	8	0.2
91	9	0.2
92	13	0.3
93	27	0.4
94	27	0.5
95	54	0.8
96	63	1.0
97	75	1.4
98	81	1.7
99	155	2.4
100	144	3.1
101	241	4.2
102	238	5.3
103	266	6.5
104	394	8.3
105	379	10.0
106	561	12.5
107	551	15.0
108	704	18.2
109	758	21.6
110	699	24.8
111	815	28.5
112	879	32.5
113	927	36.7
114	894	40.7
115	987	45.2
116	920	49.4
117	1128	54.5
118	904	58.6
119	857	62.5
120	855	66.4
121	818	70.1
122	879	74.0
123	740	77.4
124	674	80.4
125	650	83.4
126	444	85.4
127	634	88.3
128	295	89.6
129	443	91.6
130	358	93.2
131	217	94.2
132	328	95.7
133	94	96.1
134	186	97.0
135	182	97.8
136	43	98.0
137	55	98.3
138	137	98.9
139	59	99.1
141	12	99.2

Standard in 2017 TW3–4 and 2018

142	26	99.3
143	36	99.5
144	60	99.8
145	4	99.8
153	22	99.9
154	6	99.9
155	18	100.0
156	5	100.0

Table 41: Numeracy score frequency distribution of first-attempt candidates

Scale Score	Frequency	Percentile
66	1	0.0
82	1	0.0
84	1	0.0
85	3	0.0
86	6	0.1
87	6	0.1
88	8	0.1
89	8	0.2
90	23	0.3
91	20	0.3
92	16	0.4
93	22	0.5
94	31	0.7
95	42	0.9
96	66	1.2
97	50	1.4
98	84	1.8
99	114	2.3
100	98	2.7
101	126	3.3
102	172	4.1
103	153	4.8
104	218	5.8
105	203	6.7
106	300	8.1
107	296	9.4
108	399	11.2
109	312	12.6
110	377	14.3
111	432	16.3
112	616	19.1
113	515	21.4
114	640	24.3
115	549	26.8
116	646	29.8
117	707	33.0
118	765	36.5
119	557	39.0
120	705	42.2
121	436	44.2
122	982	48.6
123	969	53.0
124	350	54.6
125	891	58.7
126	1004	63.2
127	354	64.8
128	1190	70.3
129	295	71.6
130	1084	76.5
131	272	77.8
132	432	79.7
133	801	83.4
134	117	83.9
135	539	86.3
136	625	89.2
137	134	89.8
139	744	93.2
140	379	94.9
144	117	95.4

Standard in 2017 TW3–4 and 2018

145	571	98.0
146	81	98.4
156	244	99.5
157	112	100.0

Table 42 shows the percentage of candidates who sat the test in 2018 in each of the three bands for both literacy and numeracy. For literacy, nearly 57% of the candidates who sat the literacy component in 2018 were located in Band 2: At or above the standard, while approximately 34% were located in Band 3: Well above the standard or above Band 3.

For numeracy, 43% were located in Band 2: At or above the standard, while 47% were located in Band 3: Well above the standard or above Band 3.

Table 42: Candidates attempting the test in 2018 by Band achievement

Component	Year of Registration	No. of Unique Candidates	Below Band 1 (%)	Band 1 (%)	Band 2 (%)	Band 3 (%)	Above Band 3 (%)
Literacy	2018	22 066	0.2	9.3	56.8	30.7	3.0
	2018 plus the 2016–17 resitters	23 360	0.2	11.2	56.8	29.0	2.8
Numeracy	2018	22 011	0.8	9.2	43.0	36.8	10.2
	2018 plus the 2016–17 resitters	23 274	0.9	11.3	43.3	34.9	9.7

The distribution of candidate scale scores across the bands in 2018 was very similar to that in 2017 for both literacy and numeracy.

Appendix 4: Performance by Demographic Characteristics and Test Windows

Table 43 to Table 46 show performance by demographic characteristics for each test window. In general, the overall findings in Section 3: Candidate Performance are also true for each test window. The main pattern is a decline in mean scale score and pass rates from test windows 1 and 2 to test windows 3 and 4. This is more noticeable for numeracy than for literacy and explained by the higher proportion of resit candidates in test windows 3 and 4.

The larger number of candidates in test window 2 is mainly explained by the large group of female candidates (5110 for literacy and 5175 for numeracy). There is almost no variation in the number of male candidates between test windows.

Table 43: Performance by demographic characteristics in test window 1

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4338	115.5	9.3	83.1	4387	120.2	11.9	81.1
	Male	1461	117.8	9.2	90.8	1403	127.6	11.6	93.6
	Indeterminate/intersex	3	-	-	-	3	-	-	-
Age	17–25	3742	114.9	8.5	83.9	3725	121.4	11.7	84.6
	26–30	829	117.1	10.1	86.7	851	122.5	13.5	82.5
	31–35	464	118.6	10.2	87.3	439	124.6	12.3	87.5
	36–40	308	119.3	10.7	87.7	309	123.6	13.0	82.8
	41–45	239	119.5	10.9	87.0	243	123.5	13.7	82.3
	46+	220	118.9	10.3	89.1	226	120.6	13.5	81.0
International Students	No	5565	116.3	9.3	85.8	5597	121.9	12.2	83.9
	Yes	237	111.0	9.2	68.4	196	126.2	12.3	90.8
English as a First Language	Yes	5121	116.8	9.0	87.7	5179	122.1	12.0	84.9
	No	681	111.0	9.8	65.3	614	120.8	13.9	77.7
Indigenous	No	5611	116.1	9.3	85.2	5591	122.1	12.2	84.4
	Yes	94	114.0	10.3	79.8	103	116.9	12.2	69.9
	Not disclosed	97	116.5	10.2	82.5	99	120.8	12.1	84.8
Residential Area	Metropolitan areas	4720	115.9	9.3	84.2	4717	122.0	12.4	83.8
	Provincial areas	1012	116.6	9.2	89.2	1009	122.1	11.5	85.6
	Remote areas	52	118.0	10.9	82.7	51	122.9	13.2	84.3
	International	17	116.8	11.2	76.5	15	125.5	12.3	86.7
	Invalid or Missing	1	-	-	-	1	-	-	-
Program Type	Undergraduate	3932	114.6	8.6	82.8	3931	120.5	11.6	82.7
	Postgraduate	1870	119.2	10.0	89.9	1862	125.2	13.1	87.2
Program Type by Year Level	Undergraduate first year	131	115.3	9.0	81.7	127	122.0	11.9	89.8
	Undergraduate second year	505	113.7	9.1	77.8	495	119.9	11.6	79.2
	Undergraduate third year	782	114.8	8.5	85.3	777	121.5	11.7	83.9
	Undergraduate fourth year	2077	115.2	8.3	85.1	2082	121.0	11.3	85.5
	Undergraduate fifth yr or above	181	113.8	9.5	79.0	191	117.7	12.6	70.7
	Undergraduate graduated	256	111.5	8.6	69.5	259	115.5	11.2	68.7
	Postgraduate first year	609	120.5	9.5	93.9	608	128.4	12.4	92.8
	Postgraduate second year	791	119.8	9.7	90.6	781	125.2	12.9	87.8
	Postgraduate third year	90	119.5	10.6	86.7	88	122.5	12.2	83.0
	Postgraduate fourth year	84	119.3	10.1	91.7	88	122.9	13.0	81.8

	Postgraduate fifth yr or above	92	115.0	9.8	85.9	98	119.9	12.8	81.6
	Postgraduate graduated	204	114.8	10.4	77.5	199	120.0	13.3	74.9
Course Category	Early childhood	470	111.0	9.0	68.5	470	115.6	11.6	67.0
	Primary	2498	115.7	9.0	85.3	2476	121.1	11.7	84.0
	Secondary	1987	118.7	9.2	91.1	2012	125.8	12.3	90.2
	Special education	25	114.9	6.7	92.0	31	116.9	10.7	80.6
	Other	822	113.7	8.6	79.0	804	119.2	11.4	79.7

Table 44: Performance by demographic characteristics in test window 2 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	5110	115.2	9.3	82.6	5175	120.6	11.9	81.2
	Male	1718	118.1	9.4	89.9	1681	127.9	11.4	94.3
	Indeterminate/intersex	4	-	-	-	3	-	-	-
Age	17–25	4521	114.7	8.6	83.3	4557	121.8	11.8	83.9
	26–30	1016	117.9	10.4	86.8	1022	123.6	12.5	86.5
	31–35	497	118.8	10.2	88.9	493	124.8	13.0	87.0
	36–40	306	118.5	10.5	85.9	302	123.9	12.4	86.4
	41–45	231	119.5	10.5	86.6	232	123.1	13.5	82.8
	46+	261	117.8	11.8	82.8	253	120.9	13.7	79.1
International Students	No	6332	116.3	9.4	85.5	6294	122.0	12.3	83.5
	Yes	500	111.3	8.6	71.4	565	127.0	10.5	94.3
English as a First Language	Yes	5792	116.9	9.3	87.4	5804	122.3	12.1	84.4
	No	1040	110.7	8.6	68.3	1055	123.1	12.6	84.8
Indigenous	No	6609	115.9	9.4	84.5	6625	122.4	12.2	84.6
	Yes	113	113.8	8.7	79.6	118	117.0	12.6	72.9
	Not disclosed	110	118.0	9.5	89.1	116	124.9	11.9	87.9
Residential Area	Metropolitan areas	5783	115.9	9.5	84.3	5830	122.5	12.3	84.0
	Provincial areas	974	115.9	8.9	86.2	961	122.1	11.8	87.1
	Remote areas	43	116.3	12.0	76.7	39	121.1	13.6	79.5
	International	29	116.7	12.7	75.9	26	123.0	9.4	92.3
	Invalid or Missing	3	-	-	-	3	-	-	-
Program Type	Undergraduate	4289	114.1	8.5	81.6	4276	120.1	11.5	81.2
	Postgraduate	2543	119.0	10.2	89.2	2583	126.2	12.3	89.8
Program Type by Year Level	Undergraduate first year	483	113.7	8.3	81.6	541	123.0	11.1	88.0
	Undergraduate second year	736	113.8	8.3	81.8	718	120.6	12.5	82.5
	Undergraduate third year	1183	114.4	8.5	83.5	1129	120.2	11.0	82.1
	Undergraduate fourth year	1472	114.8	8.6	82.4	1479	119.6	11.3	80.3
	Undergraduate fifth yr or above	175	114.1	8.4	80.6	176	119.0	11.8	75.6
	Undergraduate graduated	240	110.7	8.3	67.9	233	115.8	11.4	67.0
	Postgraduate first year	1499	119.9	10.1	91.4	1521	128.3	11.5	94.1
	Postgraduate second year	577	119.1	9.7	89.9	583	124.7	12.3	88.3
	Postgraduate third year	76	119.9	9.8	88.2	74	124.1	12.6	81.1
	Postgraduate fourth year	97	116.8	9.9	87.6	106	123.2	13.6	86.8
	Postgraduate fifth yr or above	101	117.5	11.6	84.2	95	123.0	11.8	85.3

	Postgraduate graduated	193	113.3	9.9	74.1	204	118.2	13.4	68.6
Course Category	Early childhood	561	111.9	8.8	70.8	552	118.5	12.6	74.1
	Primary	2579	115.3	8.9	83.9	2606	120.8	11.6	82.6
	Secondary	2521	118.7	9.8	90.4	2497	126.2	12.0	91.3
	Special education	27	115.1	9.5	88.9	30	116.3	8.1	80.0
	Other	1144	113.4	8.4	79.3	1174	119.9	11.8	78.9

Table 45: Performance by demographic characteristics in test window 3 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4870	114.8	9.7	79.8	4870	118.5	11.8	76.4
	Male	1535	117.7	9.3	89.1	1481	125.9	11.6	92.8
	Indeterminate/intersex	2	-	-	-	1	-	-	-
Age	17–25	4299	114.8	9.0	81.6	4195	119.9	11.6	81.0
	26–30	944	116.7	10.7	81.8	947	121.1	13.2	79.1
	31–35	460	117.4	10.5	85.0	479	120.6	12.9	79.3
	36–40	321	117.0	10.7	83.5	309	121.6	12.7	80.9
	41–45	211	118.4	11.3	85.3	229	121.9	13.6	82.1
	46+	172	116.6	12.1	77.9	193	118.1	14.6	68.4
International Students	No	5825	116.0	9.7	83.3	5911	120.0	12.2	79.6
	Yes	582	111.1	9.0	69.2	441	123.1	11.2	88.2
English as a First Language	Yes	5383	116.5	9.5	85.3	5506	120.4	12.1	80.7
	No	1024	110.5	9.2	64.5	846	119.3	12.4	77.1
Indigenous	No	6185	115.6	9.7	82.1	6134	120.3	12.2	80.3
	Yes	109	112.9	9.1	71.6	109	116.4	11.0	70.6
	Not disclosed	113	116.8	10.6	86.7	109	120.9	11.8	84.4
Residential Area	Metropolitan areas	5259	115.5	9.7	81.7	5231	120.3	12.2	80.0
	Provincial areas	1068	115.7	9.4	83.8	1052	120.0	12.0	81.0
	Remote areas	45	117.5	10.5	86.7	44	122.4	13.3	79.5
	International	35	112.0	10.4	71.4	25	119.9	9.3	92.0
	Invalid or Missing	0	-	-	-	0	-	-	-
Program Type	Undergraduate	4357	113.9	8.9	79.0	4317	118.5	11.4	77.7
	Postgraduate	2050	119.1	10.4	88.3	2035	123.8	13.0	85.6
Program Type by Year Level	Undergraduate first year	672	112.8	9.1	75.4	675	119.4	11.0	82.7
	Undergraduate second year	878	113.5	9.2	77.7	826	117.7	11.4	75.9
	Undergraduate third year	1478	115.2	8.4	84.4	1493	120.0	10.9	83.1
	Undergraduate fourth year	974	114.2	8.7	81.1	960	118.2	11.6	75.0
	Undergraduate fifth yr or above	131	113.3	10.1	68.7	125	115.4	13.1	61.6
	Undergraduate graduated	224	109.0	7.7	56.7	238	113.0	10.9	56.3
	Postgraduate first year	1187	119.9	9.6	91.9	1135	125.4	12.3	90.0
	Postgraduate second year	454	120.3	10.9	87.9	461	123.9	13.5	84.2
	Postgraduate third year	61	119.9	11.4	85.2	61	124.6	14.6	83.6
	Postgraduate fourth year	80	117.0	9.6	83.8	85	120.7	12.1	85.9
	Postgraduate fifth yr or above	73	115.0	10.3	75.3	75	120.8	15.6	74.7
	Postgraduate graduated	195	113.4	11.7	74.9	218	117.7	12.7	69.7
Course Category	Early childhood	609	110.9	9.2	67.8	594	113.7	11.0	60.9
	Primary	2435	115.2	9.3	82.1	2441	119.5	11.8	79.2

	Secondary	2224	118.4	9.7	89.2	2216	124.2	11.9	89.2
	Special education	25	111.1	7.6	84.0	22	117.0	9.3	77.3
	Other	1114	113.1	9.0	75.2	1079	117.4	11.4	74.9

Table 46: Performance by demographic characteristics in test window 4 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4377	114.3	9.3	78.7	4422	118.2	11.6	76.3
	Male	1484	116.7	9.0	86.8	1437	125.3	11.9	90.7
	Indeterminate/intersex	0	-	-	-	1	-	-	-
Age	17–25	3959	114.2	8.5	80.9	3899	119.4	11.4	80.2
	26–30	804	115.6	10.1	80.1	819	120.6	12.7	79.7
	31–35	392	116.2	10.3	78.8	414	120.8	13.3	78.0
	36–40	288	117.2	10.8	80.9	305	121.7	13.8	79.7
	41–45	223	118.9	11.0	85.7	224	123.1	13.3	84.8
	46+	195	116.9	11.6	77.9	199	119.0	13.6	70.9
International Students	No	5457	115.3	9.2	82.4	5590	119.8	12.1	79.5
	Yes	404	109.6	9.0	58.4	270	121.9	11.6	85.9
English as a First Language	Yes	4950	115.9	9.0	84.2	5139	120.2	11.9	80.9
	No	911	109.8	9.0	61.8	721	117.8	12.8	72.4
Indigenous	No	5666	115.0	9.3	80.8	5663	119.9	12.1	79.9
	Yes	84	111.9	7.7	76.2	85	116.8	10.5	75.3
	Not disclosed	111	115.5	10.0	80.2	112	121.0	11.9	81.3
Residential Area	Metropolitan areas	4956	114.9	9.3	80.3	4917	120.0	12.2	79.6
	Provincial areas	844	115.0	8.7	83.4	884	119.5	11.4	81.1
	Remote areas	41	115.4	9.8	85.4	44	118.5	10.4	79.5
	International	20	108.6	10.0	60.0	15	122.6	13.9	73.3
	Invalid or Missing	0	-	-	-	0	-	-	-
Program Type	Undergraduate	4272	114.0	8.7	79.4	4261	118.9	11.4	79.1
	Postgraduate	1589	117.5	10.2	84.4	1599	122.6	13.3	81.7
Program Type by Year Level	Undergraduate first year	837	113.8	8.8	77.3	814	119.7	11.7	80.7
	Undergraduate second year	769	114.6	8.8	81.9	733	120.4	11.5	84.2
	Undergraduate third year	1647	114.9	8.4	84.1	1656	119.8	10.9	82.5
	Undergraduate fourth year	710	113.2	8.6	76.3	743	116.7	11.1	72.8
	Undergraduate fifth yr or above	64	112.4	9.3	70.3	78	114.8	10.6	65.4
	Undergraduate graduated	245	109.5	8.4	58.0	237	113.5	11.2	58.6
	Postgraduate first year	880	118.6	9.8	88.0	855	124.6	12.3	87.7
	Postgraduate second year	344	117.5	10.8	82.6	351	122.2	14.1	81.8
	Postgraduate third year	55	118.4	10.8	83.6	62	120.8	13.8	80.6
	Postgraduate fourth year	83	114.9	9.5	80.7	82	119.2	14.5	68.3
	Postgraduate fifth yr or above	49	115.1	9.3	75.5	58	118.4	14.8	67.2
	Postgraduate graduated	178	113.3	10.4	74.7	191	117.5	13.1	65.4
Course Category	Early childhood	582	111.2	9.6	64.4	582	115.1	11.9	65.5
	Primary	2282	114.6	8.8	81.7	2280	119.1	11.5	79.6
	Secondary	1982	117.7	9.0	88.8	1991	123.4	12.0	87.1
	Special education	69	116.0	8.3	88.4	74	119.6	9.6	86.5
	Other	946	112.1	8.9	70.9	933	117.5	11.7	73.4

Figure 7 to Figure 11 show achievement distributions in literacy and numeracy by demographic characteristics for each test window.

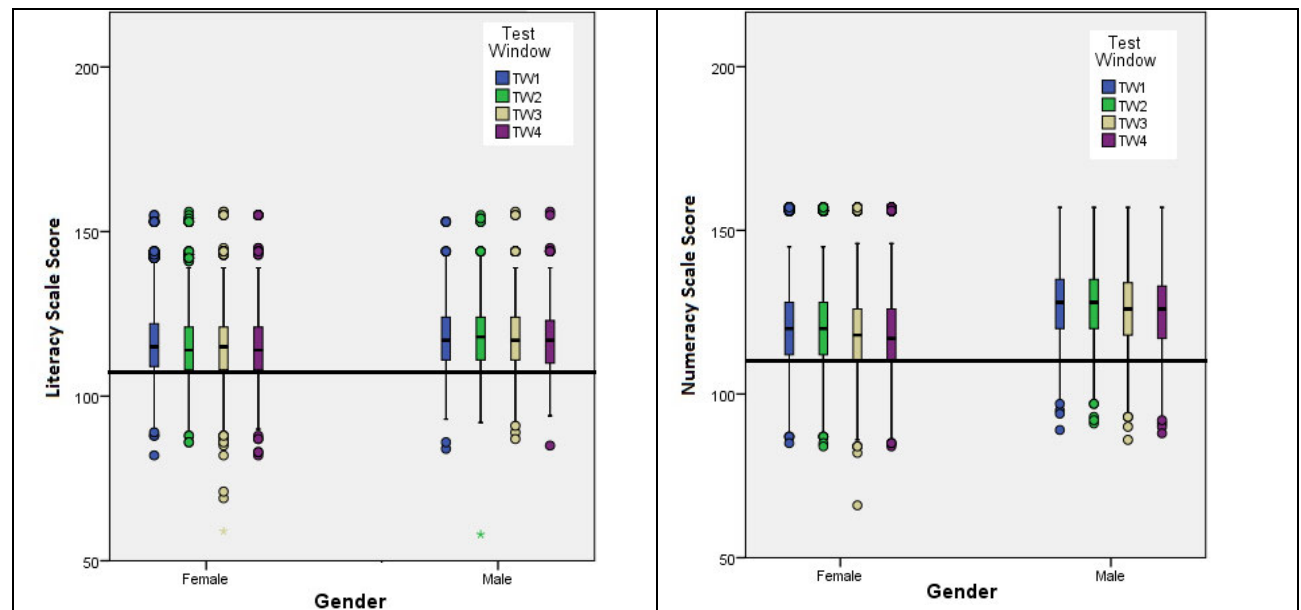


Figure 7: Score distribution by gender and test window

Figure 7 shows that, for literacy, the distributions of the scale scores of female candidates and male candidates are very similar. For numeracy, while the distributions of the scale scores of male candidates were higher up the scale than those of female candidates, it can be seen that in each test window many female candidates achieved well above the numeracy standard.

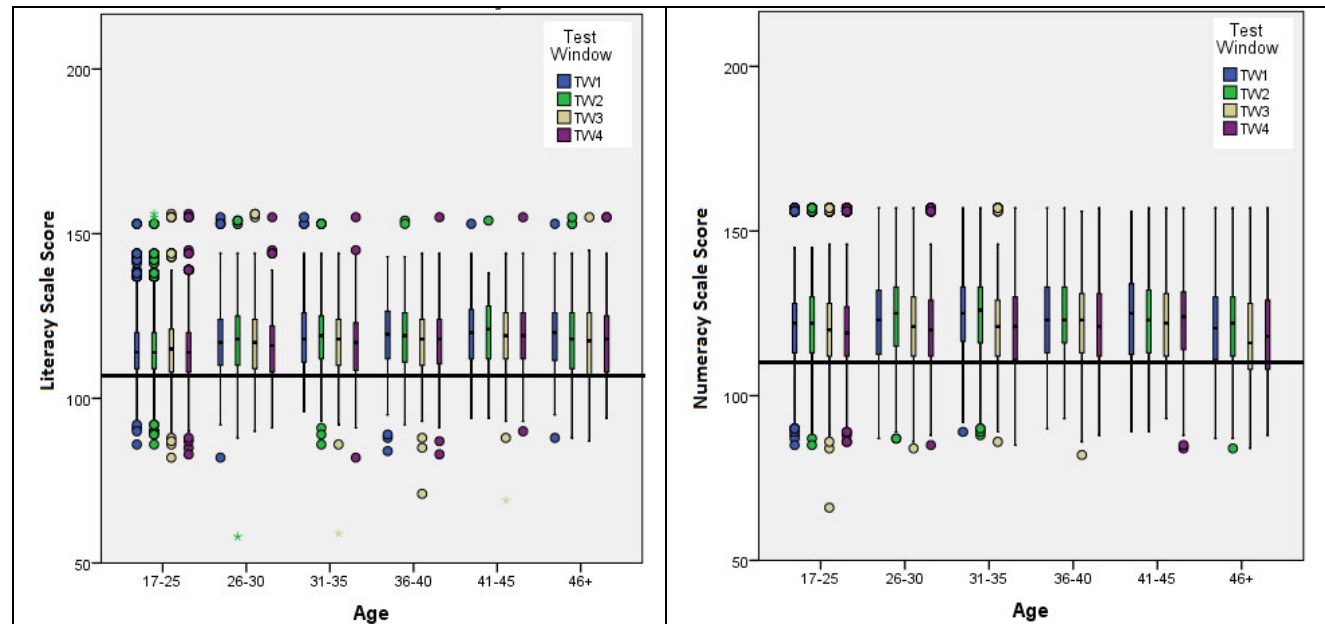


Figure 8: Score distribution by age group and test window

Figure 8 shows that, for both literacy and numeracy, the distributions of the scale scores of the age groups are very similar. The one exception is for literacy where it can be seen that the achievement of candidates in the 17–25 year age group is lower than the achievement of older candidates. The achievement of the 46+ age group is lower for numeracy in test windows 3 and 4.

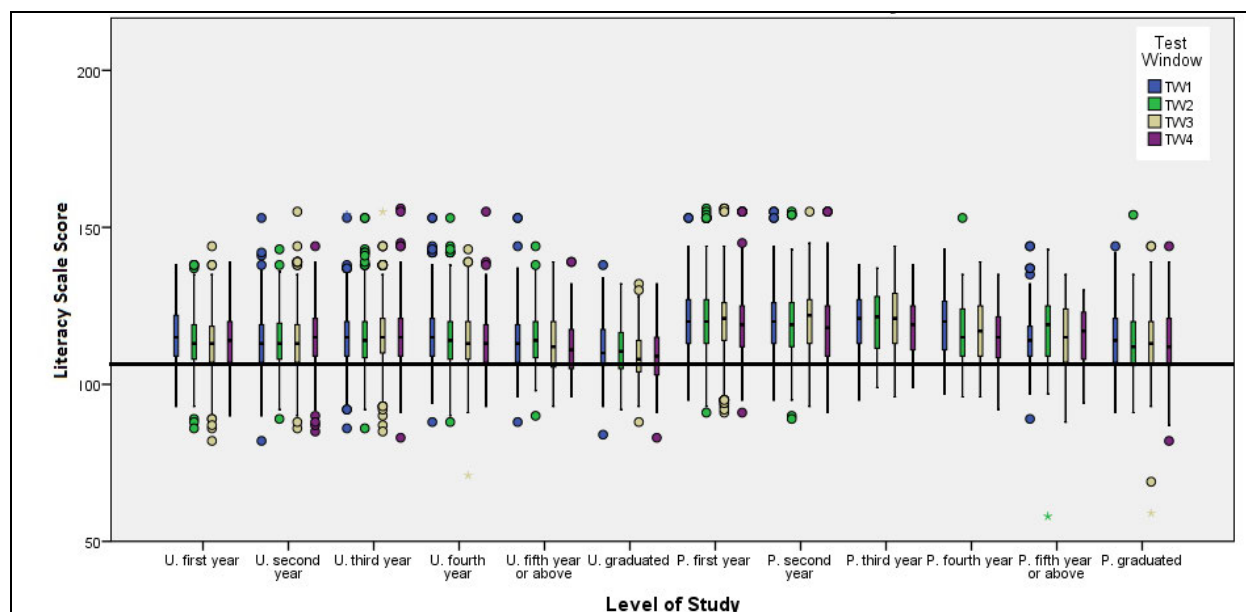


Figure 9: Score distribution by program type, year level and test window – literacy

Figure 9 shows that for literacy, there are no observable patterns in the scale score distributions of undergraduates except that there is a decline in achievement of those sitting the test in test windows 3 and 4 of their fifth year and after graduation. There is a stronger downward trend in the distributions of postgraduate candidates. This is primarily due to the higher proportions of resit candidates in the later year cohorts and in the later test windows.

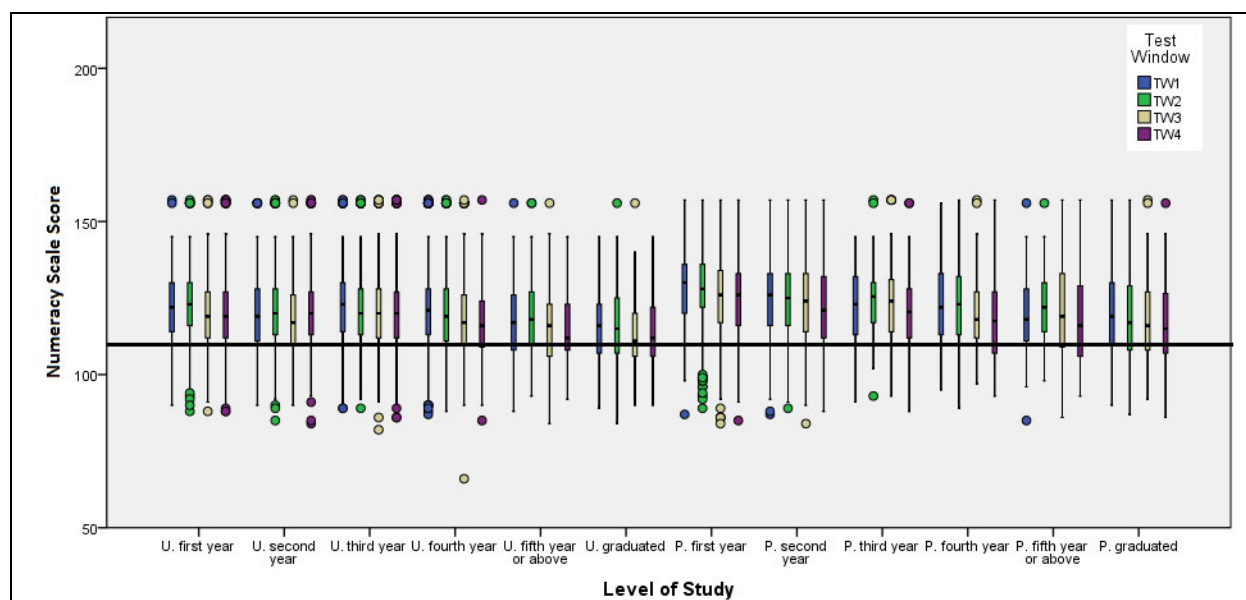


Figure 10: Score distribution by program type, year level and test window – numeracy

Figure 10 shows similar, and slightly stronger, downward trends for numeracy as those shown in Figure 9 for literacy.

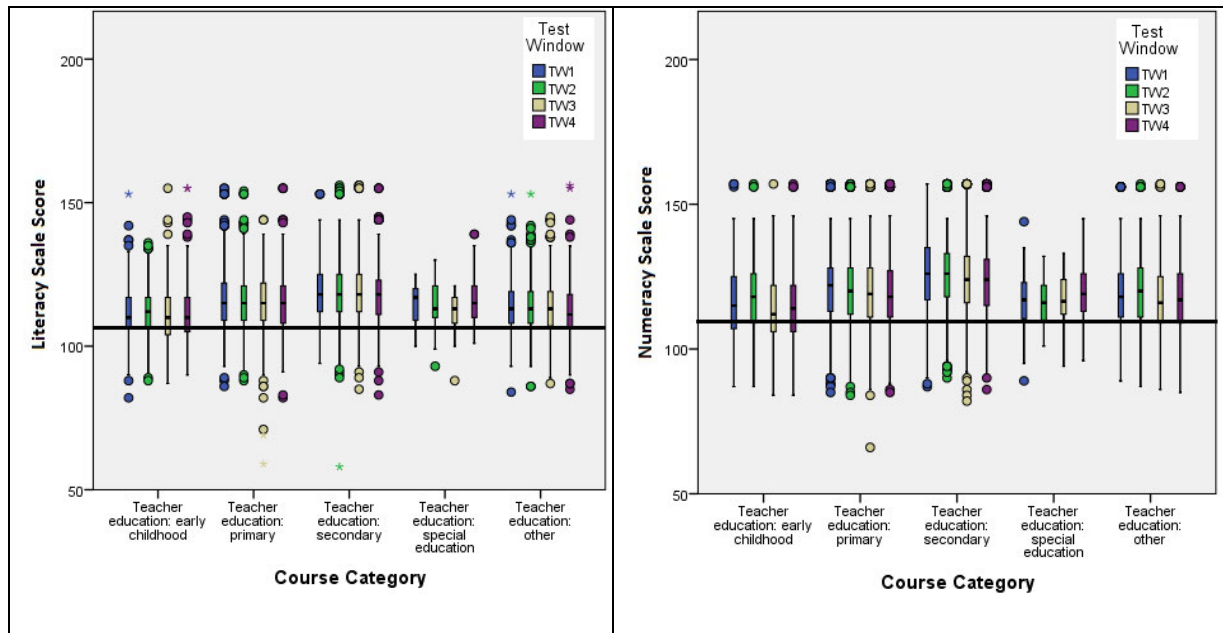


Figure 11: Score distribution by course category and test window

Figure 11 shows that there are no strong observable patterns between test windows in the scale score distributions of the course categories for both literacy and numeracy. For numeracy, for each course category except special education, achievement in test windows 3 and 4 again tends to be lower than that in test windows 1 and 2.

Appendix 5: Performance by Test Centres and Remote Proctoring by Test Window

Table 47 shows performance by location of test centres and remote proctoring in test windows 1 to 4.

Table 47: Performance by test centres and remote proctoring in test windows 1 to 4

Test Window	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
TW1	Capital Cities	3621	116.3	9.5	84.6	3585	122.3	12.4	84.7
	Regional Cities	890	115.8	8.3	88.8	903	122.0	11.4	85.9
	Remote Proctoring	1291	115.7	9.3	83.8	1305	121.2	12.4	81.5
TW2	Capital Cities	4101	116.2	9.4	85.0	4109	122.9	12.1	85.3
	Regional Cities	1158	115.0	8.9	84.1	1169	121.7	12.2	84.0
	Remote Proctoring	1573	115.8	9.9	83.2	1581	121.7	12.4	82.4
TW3	Capital Cities	3789	116.0	9.6	83.2	3797	120.4	12.1	81.1
	Regional Cities	812	115.6	8.5	85.1	810	121.0	11.9	82.5
	Remote Proctoring	1806	114.6	10.2	78.2	1745	119.4	12.4	77.4
TW4	Capital Cities	4198	115.3	9.4	81.6	4168	120.2	12.0	80.8
	Regional Cities	NA	NA	NA	NA	NA	NA	NA	NA
	Remote Proctoring	1663	114.1	8.9	78.5	1692	119.3	12.1	77.5

Comparing the mean scale scores for remote proctoring and test centres in capital cities and regional cities, it can be seen that while mean scale scores tended to be higher in test windows 1 and 2 and lower in test windows 3 and 4, the differences were very small for test centres in capital and regional cities. The differences were largest for remote proctoring (a decline of approximately 2 scale score points from test window 2 to test window 4), mainly because resitting candidates tended to use remote proctoring for subsequent attempts.

Table 48: List of potential gender DIF items

Item Label	Name	Difference in Item Difficulties (logit) (Male–Female)	Standardised Difference in Item Difficulties (logit) (Male–Female)	Chi-square	Probability	Gender Favoured
L031102	Volunteers wanted	0.92	5.4	29.6	0.00	Female
L031106	Volunteers wanted	-1.47	-4.0	15.9	0.00	Male
L028202	Sun safety	-0.96	-3.3	10.9	0.00	Male
L028203	Sun safety	0.62	4.2	17.7	0.00	Female
L017205	Non-metropolitan youth	-0.64	-7.6	58.1	0.00	Male
L017305	Disability Standards 2005	0.75	4.5	20.1	0.00	Female
L016304	Creative arts	-0.71	-4.1	17.0	0.00	Male
L015209	Education as drawing out	-0.90	-6.5	41.8	0.00	Male
L017307	Disability Standards 2005	-0.63	-6.9	47.8	0.00	Male
N098301	Hourly Rate	0.61	5.9	34.7	0.00	Female
N090401	Categories of Disability	0.61	7.4	54.9	0.00	Female
N094802	Musical Instruments	0.71	4.8	23.2	0.00	Female
N100402	School Bus	-1.17	-6.8	46.2	0.00	Male
N091401*	Language at Home	-0.84	-9.0	81.4	0.00	Male
N093601	Compare Discounts	-0.64	-7.6	57.3	0.00	Male
N099501	Allergen Information	1.13	4.4	19.0	0.00	Female
N103101	Life Issues	-0.78	-3.4	11.7	0.00	Male
N103402	Wait Time	0.68	4.6	21.2	0.00	Female
N099101*	Flow Rate	-1.43	-8.7	76.2	0.00	Male
N097301	Train Time	-2.14	-9.4	87.4	0.00	Male

*calculator not available

Figure 13 shows the DIF plots for age groups (17–25 year olds compared to 26+ year olds). There is a small set of items (5 literacy and 7 numeracy) outside the confidence interval limits for both literacy and numeracy.

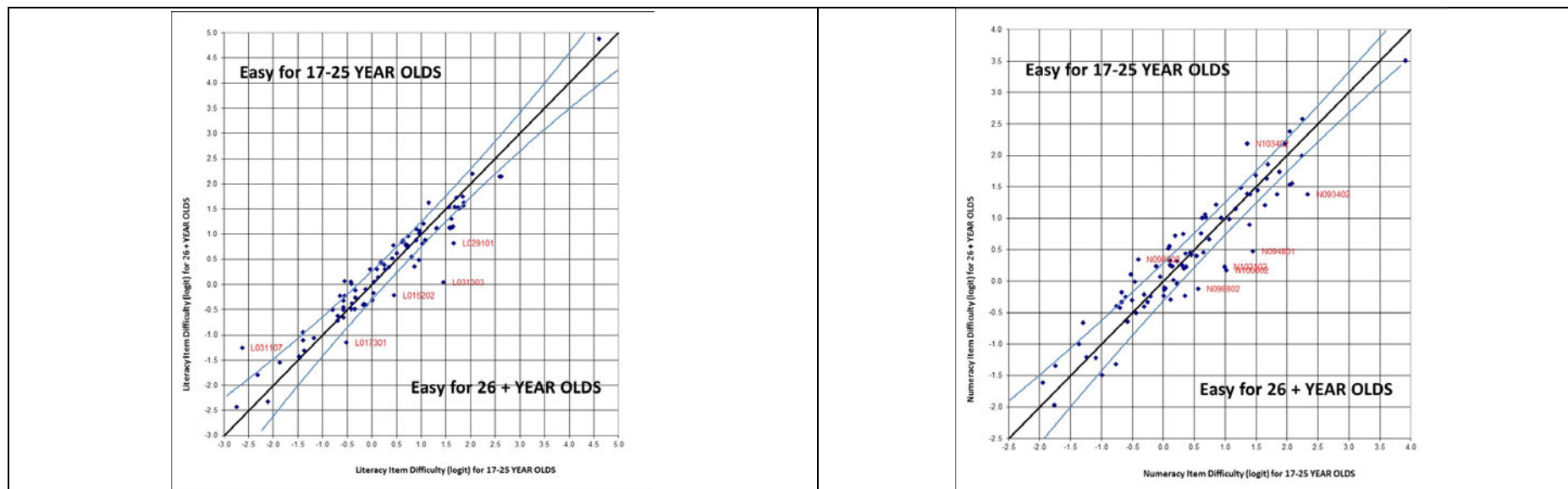


Figure 13: Age group DIF plots

Table 49 lists the items with potential DIF by age group. Of the 5 literacy items, most (4) favoured candidates aged over 25, a similar finding to 2017. This is not a surprising finding given the achievement of candidates on the literacy component tends to increase with age. Of the four literacy items favouring candidates aged over 25, two were reading items and two were technical skills of writing items. Unlike 2017, where no potential age DIF was found in the pool of numeracy items, in 2018 seven items were found. Of these, most (5) favoured candidates aged over 25 and three of these were number items.

Table 49: List of potential age group DIF items

Item Label	Name	Difference in Item Difficulties (logit) (17–25 Year Olds – 26+ Year Olds)	Standardised Difference in Item Difficulties (logit) (17–25 Year Olds – 26+ Year Olds)	Chi-square	Probability	Age Favoured
L029101	Interdisciplinary studies	0.84	5.8	33.6	0.00	26+
L031303	Excursions and learning	1.41	9.1	83.2	0.00	26+
L017301	Disability Standards 2005	0.63	3.3	11.1	0.00	26+
L015202	Education as drawing out	0.67	4.5	20.5	0.00	26+
L031107	Volunteers wanted	-1.37	-3.7	13.9	0.00	17–25
N102102	Trip Plan	0.76	4.9	24.0	0.00	26+
N094801	Musical Instruments	0.97	6.5	42.8	0.00	26+
N098802	Solar Panels	0.68	4.2	17.3	0.00	26+
N100602	Hire Purchase	0.85	5.7	32.9	0.00	26+
N093402	Time Allocation	0.95	6.5	41.9	0.00	26+
N103402	Wait Time	-0.84	-5.6	31.8	0.00	17–25
N098902	Water Leaks	-0.76	-4.4	19.0	0.00	17–25

Figure 14 shows the DIF plots for program type (undergraduate compared to postgraduate).

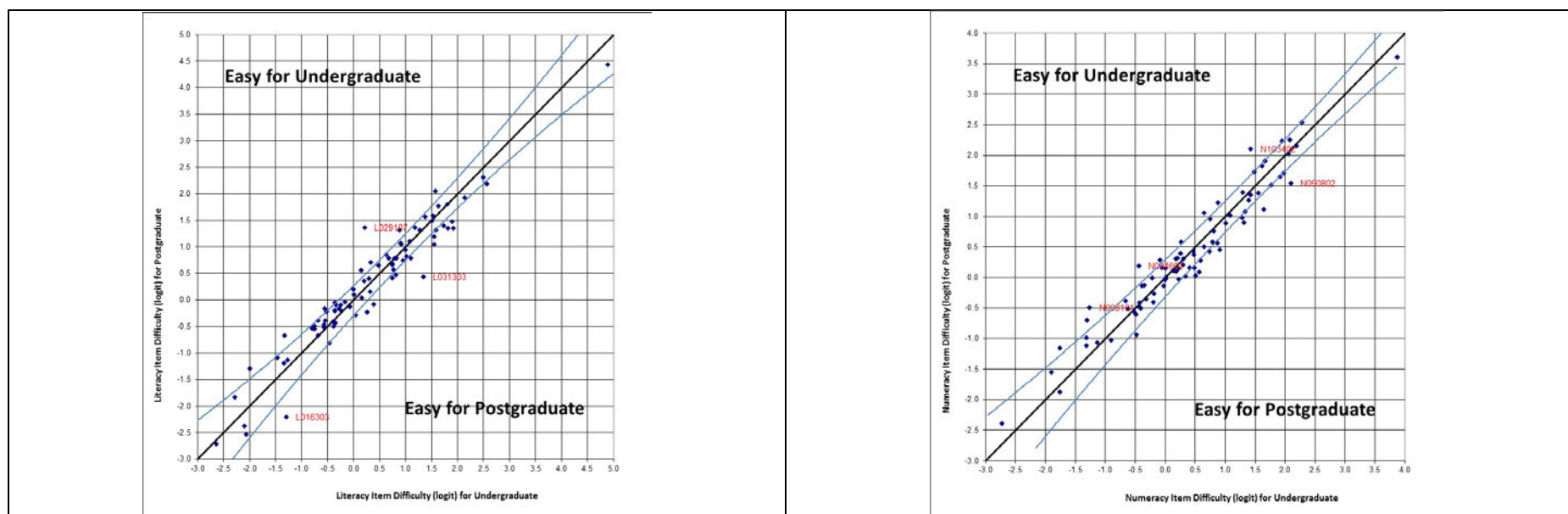


Figure 14: Program type DIF plots

Table 50 lists the items with potential DIF by program type. One literacy item favoured undergraduate candidates and two favoured postgraduate candidates. For numeracy, three items favoured undergraduate candidates and one favoured postgraduate candidates. There were no obvious patterns in the type of items.

Table 50: List of potential program type DIF items

Item Label	Name	Difference in Item Difficulties (logit) (Undergraduate– Postgraduate)	Standardised Difference in Item Difficulties (logit) (Undergraduate– Postgraduate)	Chi-square	Probability	Program favoured
L029107	Interdisciplinary studies	-1.14	-7.6	57.0	0.00	Undergraduate
L031303	Excursions and learning	0.90	5.9	35.2	0.00	Postgraduate
L016303	Creative arts	0.92	4.0	16.0	0.00	Postgraduate
N094602	Development Score	-0.63	-3.6	12.8	0.00	Undergraduate
N098101	Basketball Uniform	-0.77	-3.5	12.3	0.00	Undergraduate
N090802	Risk Levels	0.56	3.8	14.6	0.00	Postgraduate
N103402	Wait Time	-0.68	-4.6	21.3	0.00	Undergraduate

Figure 15 shows the DIF plots for course category (early childhood & primary compared to secondary).

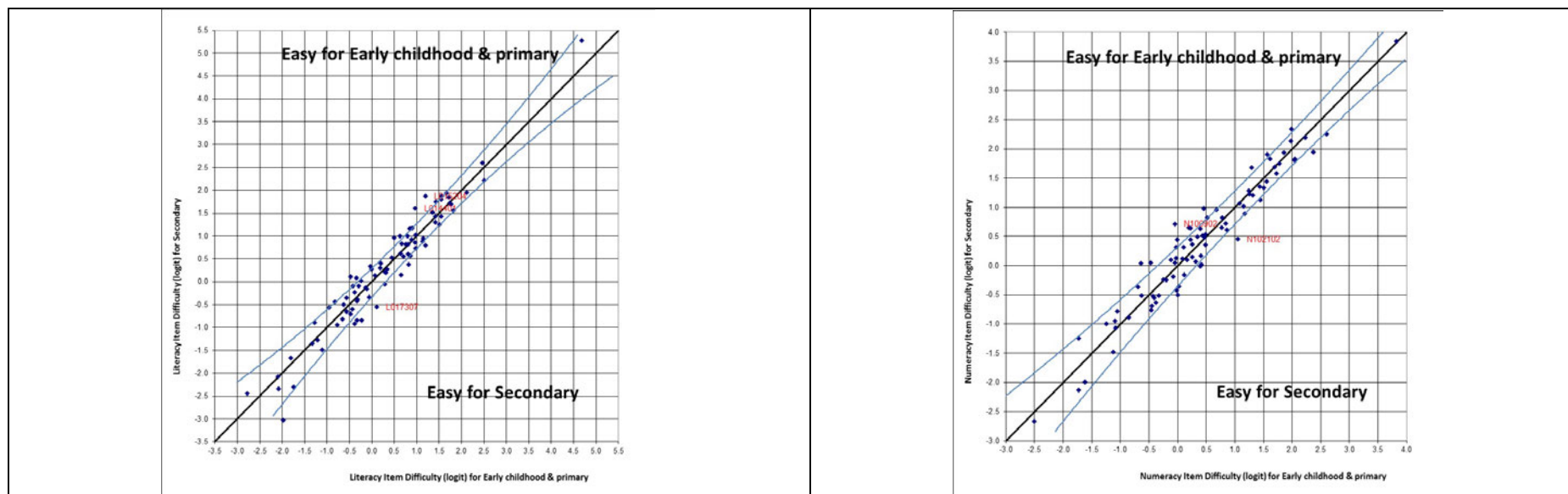


Figure 15: Course category DIF plots

For numeracy, one item favoured candidates enrolled in early childhood & primary courses and one favoured candidates enrolled in secondary courses. There were no obvious patterns in the type of items.

Table 51 lists the item with potential course category DIF. Two literacy items favoured candidates enrolled in early childhood & primary courses and one favoured candidates enrolled in secondary courses. For numeracy, one item favoured candidates enrolled in early childhood & primary courses and one favoured candidates enrolled in secondary courses. There were no obvious patterns in the type of items.

Table 51: List of potential course category DIF items

Item Label	Name	Difference in Item Difficulties (logit) (Early childhood & primary – Secondary)	Standardised Difference in Item Difficulties (logit) (Early childhood & primary – Secondary)	Chi-square	Probability	Course favoured
L014401	The laughing couple	-0.64	-7.0	48.9	0.00	Early childhood & primary
L015204	Education as drawing out	-0.68	-4.6	21.1	0.00	Early childhood & primary
L017307	Disability Standards 2005	0.66	6.4	40.5	0.00	Secondary
N100902	Workshop Combinations	-0.76	-4.2	17.8	0.00	Early childhood & primary
N102102	Trip Plan	0.60	3.4	11.6	0.00	Secondary

It is worth noting that two literacy items and two numeracy items showed significant DIF for more than one subgroup, as shown in Table 52. The content of these four items will be further explored and they will be given a low priority for selection and release.

Table 52: List of items showing multiple DIF

Item label	Name	Favoured
L017307	Disability Standards 2005	Male candidates and Secondary course candidates
L031303	Excursions and learning	26+-year-old candidates and postgraduate candidates
N102102	Trip Plan	26+-year-old candidates and Secondary course candidates
N103402	Wait Time	17–25-year-old candidates, female candidates and undergraduate candidates



LITERACY AND NUMERACY TEST FOR INITIAL TEACHER EDUCATION STUDENTS

2019 Technical Report

FOR THE DEPARTMENT OF EDUCATION,
SKILLS AND EMPLOYMENT

MARCH 2019

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1. OVERVIEW

1.1 Administration

The Literacy and Numeracy Test for Initial Teacher Education students ('the test') was conducted across Australia for the fourth year, in four test windows, from February 2019 to November 2019. In this period, 24301 unique candidates attempted one or both components of the test (literacy and numeracy), of which 85 had initially registered for the test in 2016, 615 in 2017 and 2057 in 2018.

In 2019, 21 544 candidates registered for the test and attempted one or both components of the test for the first time, a decline of 1203 from 22 747 in 2018.

In 2019, 20 670 candidates (1396 fewer than 2018) sat the literacy component for the first time and 20 702 candidates (1318 fewer than 2018) sat the numeracy component for the first time. A similar decline was evident from 2017 to 2018.

During 2019, there were 3030 resits (by 2621 candidates) of the literacy component for a second, third, fourth or fifth time, including the resits of 46 candidates who first registered in 2016, 369 in 2017 and 1261 in 2018. For numeracy, there were 3107 resits (by 2676 unique candidates) of the numeracy component in 2019 for a second, third, fourth or fifth time, including the resits of 56 candidates who first registered in 2016, 377 in 2017 and 1253 in 2018.

As for previous years, approximately three-quarters (74%) of the candidates were female, most (67%) were aged 25 or less, and slightly more candidates were enrolled in primary courses than in secondary courses (40% and 37% respectively).

Students from 47 higher education providers sat the test in 2019, the same providers as in 2018. The test was offered at 24 test centres (8 capital cities and 16 regional cities) in all states and territories, or via remote proctoring under prescribed conditions.

The majority (78%) of first-attempt candidates in 2019 sat the test at a test centre, with 22% choosing remote proctoring. As for 2018, candidates resitting the test in 2019 were more likely to do so via remote proctoring with each attempt. For example, in 2019, 29% of second-attempt candidates, 34% of third-attempt candidates and 37% of fourth-attempt candidates sat the test remotely in 2019.

Table 1 shows the number of sittings by location for each test window (TW). For both components, the proportion of sittings by remote proctoring in 2019 was 23%, down slightly from 25% in 2018.

Table 1: Number of sittings by location and by test window, including resits¹

Location of testing	TW1		TW2		TW3		TW4	
	Literacy	Numeracy	Literacy	Numeracy	Literacy	Numeracy	Literacy	Numeracy
Capital cities	3457	3436	4181	4196	3788	3804	4451	4437
Regional cities	853	862	886	888	710	703	NA	NA
Remote proctoring	1176	1182	1130	1127	1336	1396	1732	1778
Total sittings	5486	5480	6197	6211	5834	5903	6183	6215

¹ Tables 1 and 2 include resit candidates in all test windows.

At each test window a proportion of candidates (26%–32%) chose to attempt only one of the test components as shown by Table 2. While test windows 2 and 3 had the greatest proportion of sittings in 2018 (53%), in 2019 it was test windows 2 and 4 (also 53%).

Table 2: Summary of sittings by test window, including resits

Test	TW1	TW2	TW3	TW4	Total
Both literacy and numeracy	4666	5166	4861	5030	19723
Literacy only	820	1031	973	1153	3977
Numeracy only	814	1045	1042	1185	4086
Total sittings	6300	7242	6876	7368	27786

Testing conditions were modified to accommodate 437 candidates with special needs in 2019, compared to 277 in 2018. Accessible versions of the test were also available for candidates who required supportive technology, such as a screen reader. The online accessible versions of the test were used on several occasions in 2019. There was a significant increase in the number of requests to accommodate anxiety disorder while the number of requests for dyslexia declined in 2019 compared to 2018. Accommodations are further described in Section 2 of this report.

1.2 Candidate results

Table 3 shows the number of candidates attempting each component and both components, and their pass rates at the end of 2019. The table shows how the pass rates increase over time as candidates resit and achieve the standard. For example, of those candidates who initially registered for the literacy component in 2016, the pass rate increased by 2.1% from 95.2% at the end of 2016 to 97.3% at the end of 2017, but only by a further 0.3% to 97.6% at the end of 2018 and a further 0.2% at the end of 2019. By the end of 2019, some resitting candidates had attempted the test up to five times.

In the four-year period from 2016 to 2019, the number of unique candidates participating in one or more components of the test was 80 241. Of these, 79 201 sat the literacy component and 79 258 sat the numeracy component. Almost all candidates (78 218) attempted both components of the test while 983 attempted literacy only and 1040 attempted numeracy only. At the end of 2019, of the 78 218 candidates who had attempted both components, 71 626 candidates had achieved both standards – an overall pass rate of 91.6% (slightly better than the overall pass rate of 90.7% at the end of 2018).

Table 3: Summary of candidate results

Component	Year of registration	At end of year	Number of unique candidates	Standard achieved	Standard not achieved	Cancelled due to misconduct	Pass rate
Literacy	2016	2016	13083	12459	624	0	95.2
	2016	2017	13083	12732	351	0	97.3
	2016	2018	13083	12774	309	0	97.6
	2016	2019	13083	12789	294	0	97.8
	2017	2017	23387	21518	1869	0	92.0
	2017	2018	23387	22213	1174	0	95.0
	2017	2019	23387	22386	1001	0	95.7
	2018	2018	22061	19955	2106	0	90.5
	2018	2019	22061	20735	1326	0	94.0
	2019	2019	20670	18955	1715	0	91.7
	2016–19	2019	79201	74865	4336	0	94.5

Numeracy	2016	2016	13084	12324	760	0	94.2
	2016	2017	13084	12623	461	0	96.5
	2016	2018	13084	12663	421	0	96.8
	2016	2019	13084	12678	406	0	96.9
	2017	2017	23465	21653	1812	0	92.3
	2017	2018	23465	22239	1226	0	94.8
	2017	2019	23465	22411	1054	0	95.5
	2018	2018	22007	19810	2197	0	90.0
	2018	2019	22007	20544	1463	0	93.4
	2019	2019	20702	18773	1929	0	90.7
	2016–19	2019	79258	74406	4852	0	93.9
Both	2016–19	2019	78218	71626	6592	0	91.6

Table 4 shows the percentage of candidates by the number of attempts they had at each component of the test, as at the end of 2019. It can be seen that across the four years and for both components, approximately 93% of candidates attempt the test once, approximately 5% of candidates attempted the test twice, and approximately 2% of candidates attempted the test three or more times. For literacy, by the end of 2019, 5.6% of the candidates who registered in 2016 had resat the test, compared to 9.1% of the 2017 cohort, 9.5% of the 2018 cohort and 4.6% of the 2019 cohort. For numeracy, by the end of 2019, approximately 6.4% of the candidates who registered in 2016 had resat the test, compared to 8.3% of the 2017 cohort, 9.3% of the 2018 cohort and 4.8% of the 2019 cohort.

Table 4: Summary of resit rates by year of registration and overall

Domain	Year of registration	Number of unique candidates	Unique candidates who had 1 attempt only (%)	Unique candidates who had 2 attempts only (%)	Unique candidates who had 3 attempts only (%)	Unique candidates who had 4 attempts only (%)	Unique candidates who had 5 attempts only (%)
Literacy	2016	13083	94.4	3.9	1.1	0.5	0.1
	2017	23387	90.9	5.7	2.5	0.8	0.1
	2018	22061	90.5	6.8	2.3	0.4	0.0 (1)
	2019	20670	95.4	4.1	0.5	0.0 (5)	NA
	2016–19	79201	92.6	5.3	1.7	0.4	0.1
Numeracy	2016	13084	93.6	4.0	1.4	0.7	0.2
	2017	23465	91.7	5.0	2.3	0.8	0.2
	2018	22007	90.7	6.6	2.3	0.4	NA
	2019	20702	95.2	4.2	0.6	0.0 (3)	NA
	2016–19	79258	92.7	5.1	1.7	0.5	0.1

*The zero percentages are rounded and relate to the small numbers shown in brackets.

Table 5 shows that of the 20 670 candidates who attempted the literacy component for the first time in 2019, 88.7% achieved the standard at their first sitting, compared to 93.3% in 2016, 89.2% in 2017 and 87.5% in 2018. For numeracy in 2019, 87.7% of the 20 702 candidates achieved the standard at their first sitting, compared to 92.5% in 2016, 90.0% in 2017 and 87.4% in 2018.

Under the standard resit allowance, candidates who do not achieve the standard on their first attempt are permitted up to two additional sittings. In a small number of cases, more than two resits may be granted in exceptional circumstances. The number of resitting candidates in 2019 for both literacy and numeracy continued to increase as did the pass rates. For literacy, in 2018 there were 2836 resits (pass rate 49%) while in 2019 there were 3029 resits (pass rate 52%). For numeracy, in 2018 there were 2853 resits (pass rate 42%) while in 2019 there were 3107 resits (pass rate 49%).

Table 5: Number of sittings and pass rates by attempt and by test window in 2019

		TW1	Pass rate	TW2	Pass rate	TW3	Pass rate	TW4	Pass rate	Total	Pass rate
Literacy	First sitting	4762	88.6	5434	88.6	5171	88.1	5303	89.5	20670	88.7
	Second sitting	515	51.7	476	54.6	475	54.7	578	59.3	2044	55.2
	Third sitting	172	47.1	209	46.4	142	41.5	225	51.6	748	47.2
	Fourth sitting	30	33.3	71	50.7	36	41.7	64	46.9	201	45.3
	Fifth sitting	6	50.0	7	57.1	10	40.0	13	38.5	36	44.4
	Total sittings	5485		6197		5834		6183		23699	
Numeracy	First sitting	4772	86.5	5420	87.7	5198	87.3	5312	89.3	20702	87.7
	Second sitting	484	49.0	534	43.8	478	48.7	562	55.2	2058	49.3
	Third sitting	175	48.0	196	41.3	161	49.7	244	57.0	776	49.5
	Fourth sitting	43	46.5	55	45.5	52	38.5	81	63.0	231	50.2
	Fifth sitting	6	16.7	6	0.0	14	57.1	16	62.5	42	45.2
	Totals sittings	5480		6211		5903		6215		23809	

Candidates' results for 2019 are described in more detail in Section 3 of this report.

1.3 Test design and in-test trialling for replenishment of item pool

In the first half of 2019, in test windows 1 and 2, there were 10 equivalent test forms for literacy and 10 equivalent test forms for numeracy. In the second half of 2019, in test windows 3 and 4, a proportion of the test forms were refreshed using items that were trialled in 2018. In these test windows, there were 15 equivalent test forms for literacy and 15 equivalent test forms for numeracy.

For literacy, each test form comprised five 12-item clusters (C1 to C5) totalling 60 items. For numeracy, the test was divided into two sections as follows: section 1 ('calculator available' – CA) comprising four 12-item clusters (48 items), and section 2 ('calculator not available' – CN) comprising two 6-item clusters (12 items), totalling 60 items.

In order to augment and replenish the pool of items available for the test in future administrations, items were trial-tested within the live instruments. These items were administered in small clusters (one to five items) and did not contribute to the candidates' scores. Seventy-five (75) literacy items and 80 numeracy items were administered in the in-test trial clusters. Approximately 600 candidates were administered each of these trial items in 2019.

Examples of one literacy test and one numeracy test with in-test trial clusters are shown below.

Literacy	C1	C2	C3	C4	C5	Trial C
-----------------	----	----	----	----	----	---------

	Section 1					Section 2		
Numeracy	CA1	CA2	CA3	CA4	Trial CA	CN1	CN2	Trial CN

In the second half of 2019 and the first half of 2020, 75 Phase 5 literacy items and 75 Phase 5 numeracy items were in-test trialled. Of these, 5 literacy items and 2 numeracy items were judged to have unsatisfactory psychometric properties and were deleted from the pool. The remaining items were well-targeted for difficulty across the three reporting Bands, as required by the test construct and assessment framework, thereby ensuring adequate test replenishment.

The Phase 5 trial items revealed some differential item functioning (DIF); however, for both literacy and numeracy, the DIF was 'well-balanced' for Course Category and Program Type variables but less so for the Age and Gender variables. For example, for the Age variable, only 1 literacy trial item and 2 numeracy trial items favoured candidates aged 17–25 years, while 4 literacy trial items and 4 numeracy trial items favoured candidates aged 26+ years. For the Gender variable, while 5 literacy trial items and 7 numeracy trial items favoured female candidates, only 3 literacy trial items and 4 numeracy trial items favoured male candidates. For more detail, see Section 5.

1.4 Comparison of 2016, 2017, 2018 and 2019 results

Table 6 shows that while the mean scale scores of first-attempt candidates changed little across the four years, the pass rates showed steady decline for both domains. For literacy, from 2016 to 2019, the pass rates of first-attempt candidates declined from 93.3% in 2016 to 89.2% in 2017, but appeared to stabilise in 2018 and 2019 to 87.5% and 88.7% respectively. For numeracy, from 2016 to 2019, the pass rates of first-attempt candidates also declined from 92.4% in 2016 to 90.0% in 2017, but also appeared to stabilise in 2018 and 2019 to 87.4% and 87.7% respectively. The decline in the pass rates of first-attempt candidates from 2016 to 2018 reflects the introduction of the revised standards mid-2017.

The number of third-, fourth- and fifth-attempt candidates continued to increase for both components of the test but the increase from 2018 to 2019 was less than that from 2017 to 2018, again indicating a trend towards stabilisation. The significant increase in mean scale scores from 2018 to 2019 of several resit cohorts overall and across several strands for each component was also of interest and is reported in Table 31 in Section 3.

Table 6: Comparison of performance by attempt number, overall and by subscale

Component	Attempt number	Whole test and subscale	2016			2017			2018			2019		
			Number of sittings	Mean	Pass rate	Number of sittings ²	Mean	Pass rate	Number of sittings ³	Mean	Pass rate	Number of sittings	Mean	Pass rate
Literacy	1st	Overall	13082	117.5	93.33	23387	117.0	89.2	22061	116.8	87.5	20670	116.8	88.7
		Reading		117.4			117.1			117.1			117.1	
		TSW*		117.5			116.9			116.2			116.3	
	2nd	Overall	340	107.5	67.94	1488	106.5	53.5	2022	106.6	51.3	2044	106.9	55.2
		Reading		107.2			106.6			106.6			107.2	
		TSW		107.9			106.1			106.6			106.5	
	3rd	Overall	25	107.7	76.00	297	105.4	40.1	647	106.0	46.1	748	106.3	47.2
		Reading		107.3			105.5			105.6			106.3	
		TSW		108.5			105.1			106.6			106.5	
	4th	Overall	0	NA	NA	34	106.1	41.2	158	104.8	32.9	201	106.4	45.3
		Reading		NA	NA		105.4			104.2			105.8	
		TSW		NA	NA		107.4			105.8			107.8	
	5th	Overall	0	NA	NA	0	NA	NA	13	105.0	23.1	36	106.1	44.4
		Reading		NA	NA		NA	NA		104.7			106.0	
		TSW		NA	NA		NA	NA		105.2			106.6	
		Reading		NA	NA		NA	NA		NA	NA		NA	NA
		TSW		NA	NA		NA	NA		NA	NA		NA	NA
Numeracy	1st	Overall	13084	122.4	92.4	23464	123.0	90.0	22007	122.8	87.4	20702	122.7	87.7
		Num&alg*		121.8			122.3			122.5			123.2	
		Meas&geom*		121.5			122.8			122.6			121.6	
		Stat&prob*		122.7			123.0			122.6			122.2	
		Calc avail*		122.5			123.2			123.1			122.9	
		Calc not avail*		119.3			119.7			120.6			121.7	
	2nd	Overall	405	107.5	55.6	1366	108.1	49.9	1995	108.6	45.3	2058	109.1	49.3
		Num&alg		106.1			106.4			107.1			108.1	
		Meas&geom		108.0			109.1			109.1			109.3	
		Stat&prob		109.6			109.9			110.7			110.8	
		Calc avail		108.6			109.4			109.8			109.7	

² Sittings beyond the first attempt include candidates who first registered in previous years.³ Sittings beyond the first attempt include candidates who first registered in previous years.

		Calc not avail		103.7			103.4			103.9			106.8	
	3rd	Overall		105.4	37.5		107.3	41.5		107.7	36.8		109.0	49.5
		Num&alg		103.9			105.7			106.2			108.3	
		Meas&geom	40	106.8		340	108.2		658	108.4		776	109.2	
		Stat&prob		107.0			108.9			109.7			110.3	
		Calc avail		106.2			108.3			108.5			109.6	
		Calc not avail		102.3			103.4			104.6			106.9	
	4th	Overall		NA	NA		106.0	35.4		107.3	31.4		110.3	50.2
		Num&alg	2 ⁴	NA	NA	48	104.1		175	106.0		231	109.9	
		Meas&geom		NA	NA		107.2			107.9			110.7	
		Stat&prob		NA	NA		108.2			108.8			111.0	
		Calc avail		NA	NA		106.8			107.9			110.5	
		Calc not avail		NA	NA		103.5			104.8			109.6	
	5th	Overall		NA	NA		NA	NA		109.3	35.7		110.4	45.2
		Num&alg	0	NA	NA	0	NA	NA	28	107.5		42	111.0	
		Meas&geom		NA	NA		NA	NA		109.9			110.1	
		Stat&prob		NA	NA		NA	NA		112.0			109.5	
		Calc avail		NA	NA		NA	NA		109.9			110.1	
		Calc not avail		NA	NA		NA	NA		106.3			111.2	
		Num&alg		NA	NA		NA	NA		NA	NA		NA	NA
		Meas&geom		NA	NA		NA	NA		NA	NA		NA	NA
		Stat&prob		NA	NA		NA	NA		NA	NA		NA	NA
		Calc avail		NA	NA		NA	NA		NA	NA		NA	NA
		Calc not avail		NA	NA		NA	NA		NA	NA		NA	NA

* Technical skills of writing, Number and algebra, Measurement and geometry, Statistics and probability.

⁴ Not reported due to small (n = 2) group size.

2. TEST ADMINISTRATION WINDOWS 1–4 IN 2019

This section covers the demographic characteristics of candidates who sat the test in 2019. Details on test centres, remote proctoring and other administrative matters can be found in each of the four 2019 test window administration reports submitted separately throughout 2019.

2.1 Demographic Characteristics of Candidates

Just over 24 000 candidates from 47 institutions sat the test in 2019, the same institutions as in 2018.

Alphacrucis College	Queensland University of Technology
Australian Catholic University	RMIT University
Australian College of Physical Education	Southern Cross University
Avondale College	Swinburne University of Technology
Central Queensland University	Tabor Adelaide
Charles Darwin University	The University of Adelaide
Charles Sturt University	The University of Melbourne
Christian Heritage College	The University of New England
Curtin University	The University of New South Wales
Deakin University	The University of Newcastle
Eastern College Australia	The University of Notre Dame Australia
Edith Cowan University	The University of Queensland
Excelsia College	The University of Sydney
Federation University Australia	The University of Western Australia
Flinders University	University of Canberra
Griffith University	University of South Australia
Holmesglen TAFE	University of Southern Queensland
James Cook University	University of Tasmania
La Trobe University	University of Technology Sydney
Macquarie University	University of the Sunshine Coast
Melbourne Polytechnic	University of Wollongong
Monash University	Victoria University
Montessori World Educational Institute	Western Sydney University
Murdoch University	

Table 7 shows the demographic characteristics of all candidates who sat the test in 2019. This includes candidates who first registered for the test in 2019 plus those who registered in the period 2016–2018 and resat the test in 2019. It shows that the majority of candidates (73–74%)⁵ were female, resided in metropolitan areas (82%) and most (67%) were in the age group 17–25. The majority of candidates (66%) were enrolled in an undergraduate course. The majority of undergraduate candidates were those in their third or fourth years. Over half of the postgraduate candidates who sat the test in 2019 were those in their first year. In regard to course category, candidates were mainly enrolled in primary teacher education courses (40%), followed by secondary (37%), other teacher education courses (13–14%), early childhood (9%) and special education (less than 1%).

The proportion of international candidates attempting the test in 2019 was 7%, similar to that in 2018. The proportion of candidates who identify as Indigenous and the proportion from provincial areas were very similar to previous years at 1.8% and 1.7% respectively.

Table 7: Demographic characteristics of unique candidates who sat the test in 2019 (including 2016–18 resitters)

Characteristic	Category	Literacy		Numeracy	
		N	%	N	%
Gender	Female	16390	73.3	16516	73.8
	Male	5947	26.6	5863	26.2
	Indeterminate/intersex	9	0.0	9	0.0
Age	17–25	15055	67.4	15036	67.2
	26–30	3259	14.6	3299	14.7
	31–35	1527	6.8	1527	6.8
	36–40	1104	4.9	1098	4.9
	41–45	745	3.3	741	3.3
	46+	656	2.9	687	3.1
International Students	No	20762	92.9	20943	93.5
	Yes	1584	7.1	1445	6.5
English as a First Language	Yes	19146	85.7	19400	86.7
	No	3200	14.3	2988	13.3
Indigenous	No	21545	96.4	21587	96.4
	Yes	409	1.8	405	1.8
	Not disclosed	392	1.8	396	1.8
Residential Area	Metropolitan areas	18398	82.3	18401	82.2
	Provincial areas	3762	16.8	3780	16.9
	Remote areas	126	0.6	138	0.6
	International	42	0.2	45	0.2
	Invalid or Missing	18	0.1	24	0.1
Program Type	Undergraduate	14842	66.4	14790	66.1
	Postgraduate	7429	33.2	7530	33.6
	Pathway	75	0.3	68	0.3
Program Type by Year Level	Undergraduate first year	2159	9.7	2130	9.5
	Undergraduate second year	2704	12.1	2645	11.8

⁵ In the descriptive text accompanying the tables throughout the report, most percentages are rounded to the nearest whole per cent.

	Undergraduate third year	4817	21.6	4811	21.5
	Undergraduate fourth year	3893	17.4	3885	17.4
	Undergraduate fifth year or above	443	2.0	473	2.1
	Undergraduate graduated	826	3.7	846	3.8
	Postgraduate first year	3942	17.6	3979	17.8
	Postgraduate second year	2139	9.6	2160	9.6
	Postgraduate third year	226	1.0	233	1.0
	Postgraduate fourth year	235	1.1	260	1.2
	Postgraduate fifth year or above	230	1.0	250	1.1
	Postgraduate graduated	657	2.9	648	2.9
	Pathway first year	63	0.3	55	0.2
	Pathway second year	2	0.0	2	0.0
	Pathway third year	2	0.0	2	0.0
	Pathway fourth year	2	0.0	2	0.0
	Pathway graduated	6	0.0	7	0.0
Course Category	Teacher education: early childhood	1932	8.6	1907	8.5
	Teacher education: primary	8937	40.0	9041	40.4
	Teacher education: secondary	8248	36.9	8273	37.0
	Teacher education: special education	173	0.8	172	0.8
	Teacher education: other	3056	13.7	2995	13.4

The following demographic analysis separates the 2019 candidates into five groups for each component of the test: first-attempt candidates, second-attempt candidates (first resit), third-attempt candidates (second resit), fourth-attempt candidates (third resit), fifth-attempt candidates (fourth resit) and candidates who achieved no standard.

Table 8 shows the demographic characteristics of the first-attempt candidates for each component of the test in 2019.⁶ The demographic characteristics of this cohort are very similar to those described in Table 7 above.

Table 8: Demographic characteristics of first-attempt candidates who sat the test in 2019

Characteristic	Category	Literacy		Numeracy	
		N	%	N	%
Gender	Female	14982	72.5	15001	72.5
	Male	5679	27.5	5692	27.5
	Indeterminate/intersex	9	0.0	9	0.0
Age	17–25	13985	67.7	14003	67.6
	26–30	2962	14.3	2972	14.4
	31–35	1420	6.9	1416	6.8
	36–40	1020	4.9	1022	4.9
	41–45	690	3.3	685	3.3
	46+	593	2.9	604	2.9

⁶ This cohort is referred to as the first-attempt candidates. Subsequent tables show demographic characteristics for candidates who resat the test.

International Students	No	19300	93.4	19306	93.3
	Yes	1370	6.6	1396	6.7
English as a First Language	Yes	17996	87.1	18001	87.0
	No	2674	12.9	2701	13.0
Indigenous	No	19932	96.4	19964	96.4
	Yes	372	1.8	370	1.8
	Not disclosed	366	1.8	368	1.8
Residential Area	Metropolitan areas	16957	82.0	16965	81.9
	Provincial areas	3537	17.1	3547	17.1
	Remote areas	117	0.6	129	0.6
	International	42	0.2	43	0.2
	Invalid or Missing	17	0.1	18	0.1
Program Type	Undergraduate	13592	65.8	13596	65.7
	Postgraduate	7004	33.9	7044	34.0
	Pathway	74	0.4	62	0.3
Program Type by Year Level	Undergraduate first year	2151	10.4	2129	10.3
	Undergraduate second year	2556	12.4	2560	12.4
	Undergraduate third year	4553	22.0	4577	22.1
	Undergraduate fourth year	3379	16.3	3395	16.4
	Undergraduate fifth year or above	355	1.7	364	1.8
	Undergraduate graduated	598	2.9	571	2.8
	Postgraduate first year	3934	19.0	3968	19.2
	Postgraduate second year	1962	9.5	1961	9.5
	Postgraduate third year	197	1.0	195	0.9
	Postgraduate fourth year	209	1.0	220	1.1
	Postgraduate fifth year or above	203	1.0	209	1.0
	Postgraduate graduated	499	2.4	491	2.4
	Pathway first year	63	0.3	52	0.3
	Pathway second year	2	0.0	2	0.0
	Pathway third year	1	0.0	1	0.0
	Pathway fourth year	2	0.0	2	0.0
	Pathway graduated	6	0.0	5	0.0
Course Category	Teacher education: early childhood	1660	8.0	1682	8.1
	Teacher education: primary	8293	40.1	8305	40.1
	Teacher education: secondary	7894	38.2	7909	38.2
	Teacher education: special education	154	0.7	158	0.8
	Teacher education: other	2669	12.9	2648	12.8

As for previous years, the number of resits continued to increase. In 2019, there were 3029 resits (by 2620 candidates) of the literacy component (up from 2836 resits by 2413 candidates in 2018) and 3107 resits (by 2676 candidates) of the numeracy component (up from 2853 resits by 2376 candidates in 2018). For literacy, there were 2044 second attempts, 748 third attempts, 201 fourth attempts and 36 fifth attempts (compared to 2022, 646, 157 and 11 respectively in 2018). For numeracy, the resit numbers were 2058 second attempts, 776 third attempts, 231 fourth attempts and 42 fifth attempts (compared to

1996, 657, 174 and 26 respectively in 2018). These resit numbers included candidates who did not achieve one or more standard in 2016, 2017 and 2018.

Table 9 shows the demographic characteristics of the candidates who sat the test twice (first resit) during 2019. It shows that, as for previous years, the overwhelming majority of these resit candidates were female (81% for literacy, 89% for numeracy), mostly in the age group 17–25 (70% for literacy, 68% for numeracy). The proportion of females in the second-attempt cohort exceeded the proportion in the first-attempt cohort (73%). The majority of second-attempt candidates were enrolled in an undergraduate course (75% for literacy, 71% for numeracy), similar to 2018 (76% and 75% respectively). These proportions exceed the proportion of undergraduate candidates in the first-attempt cohort (66%). Table 9 also shows that for literacy, the proportion of second-attempt candidates for whom English was not their first language was more than double that of first-attempt candidates (30% compared to 13%). For numeracy, the proportion was only slightly higher (16% compared to 13%). It can also be seen that the proportion of candidates from early childhood courses in the second-attempt cohort was 16% for literacy, nearly double the proportion for literacy (8%) in the first-attempt cohort. For numeracy the proportions were 14% compared to 10% respectively.

Table 9: Demographic characteristics of second-attempt candidates⁷

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	1662	81.3	7.0	1823	88.6	7.7
	Male	381	18.6	1.6	234	11.4	1.0
	Indeterminate/intersex	1	0.0	0.0	1	0.0	0.0
Age	17–25	1438	70.4	6.1	1407	68.4	5.9
	26–30	292	14.3	1.2	324	15.7	1.4
	31–35	118	5.8	0.5	115	5.6	0.5
	36–40	92	4.5	0.4	74	3.6	0.3
	41–45	51	2.5	0.2	60	2.9	0.3
	46+	53	2.6	0.2	78	3.8	0.3
International Students	No	1730	84.6	7.3	1965	95.5	8.3
	Yes	314	15.4	1.3	93	4.5	0.4
English as a First Language	Yes	1436	70.3	6.1	1728	84.0	7.3
	No	608	29.7	2.6	330	16.0	1.4
Indigenous	No	1953	95.5	8.2	1983	96.4	8.3
	Yes	50	2.4	0.2	47	2.3	0.2
	Not disclosed	41	2.0	0.2	28	1.4	0.1
Residential Area	Metropolitan areas	1712	83.8	7.2	1698	82.5	7.1
	Provincial areas	325	15.9	1.4	346	16.8	1.5
	Remote areas	5	0.2	0.0	8	0.4	0.0
	International	1	0.0	0.0	2	0.1	0.0
	Invalid or Missing	1	0.0	0.0	4	0.2	0.0
Program Type	Undergraduate	1522	74.5	6.4	1462	71.0	6.1
	Postgraduate	511	25.0	2.2	586	28.5	2.5
	Pathway	11	0.5	0.0	10	0.5	0.0
Program Type by Year Level	Undergraduate 1st year	65	3.2	0.3	39	1.9	0.2
	Undergraduate 2nd year	220	10.8	0.9	143	6.9	0.6
	Undergraduate 3rd year	431	21.1	1.8	421	20.5	1.8
	Undergraduate 4th year	590	28.9	2.5	612	29.7	2.6
	Undergrad 5th yr or above	58	2.8	0.2	72	3.5	0.3

⁷ Includes candidates who registered from 2016 to 2018. Some unsuccessful candidates from Table 8 are included.

	Undergrad graduated	158	7.7	0.7	175	8.5	0.7
	Postgraduate 1st year	122	6.0	0.5	119	5.8	0.5
	Postgraduate 2nd year	185	9.1	0.8	248	12.1	1.0
	Postgraduate 3rd year	19	0.9	0.1	34	1.7	0.1
	Postgraduate 4th year	36	1.8	0.2	34	1.7	0.1
	Postgrad 5th yr or above	21	1.0	0.1	40	1.9	0.2
	Postgraduate graduated	128	6.3	0.5	111	5.4	0.5
	Pathway 1st year	8	0.4	0.0	7	0.3	0.0
	Pathway 2nd year	0	0.0	0.0	0	0.0	0.0
	Pathway 3rd year	1	0.0	0.0	1	0.0	0.0
	Pathway 4th year	1	0.0	0.0	0	0.0	0.0
	Pathway graduated	1	0.0	0.0	2	0.1	0.0
Course Category	Early childhood	334	16.3	1.4	281	13.7	1.2
	Primary	796	38.9	3.4	858	41.7	3.6
	Secondary	490	24.0	2.1	533	25.9	2.2
	Special education	21	1.0	0.1	17	0.8	0.1
	Other	403	19.7	1.7	369	17.9	1.5

Table 10 shows the demographic characteristics of the third-attempt candidates in 2019. As for the second-attempt candidates, this cohort tended to be mostly female, undergraduates, and aged 17–25. As for the second-attempt cohort, these categories are more highly represented than in the first-attempt cohort.

Table 10 also shows for literacy that English was not the first language of 36% of the third-attempt candidates, whereas the proportion was only 13% for the first-attempt candidates (as shown in Table 8). For numeracy, English was not the first language of 18% of the third-attempt candidates, also higher than the proportion (13%) of the first-attempt candidates. It can also be seen that the proportion of candidates from early childhood courses in the third-attempt cohort was 16% for literacy, nearly double the proportion for literacy (8%) in the first-attempt cohort.

Table 10: Demographic characteristics of third-attempt candidates⁸

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	631	84.4	2.7	706	91.0	3.0
	Male	117	15.6	0.5	70	9.0	0.3
	Indeterminate/intersex	0	0.0	0.0	0	0.0	0.0
Age	17–25	503	67.2	2.1	495	63.8	2.1
	26–30	112	15.0	0.5	137	17.7	0.6
	31–35	43	5.7	0.2	44	5.7	0.2
	36–40	34	4.5	0.1	43	5.5	0.2
	41–45	28	3.7	0.1	23	3.0	0.1
	46+	28	3.7	0.1	34	4.4	0.1
International Students	No	632	84.5	2.7	742	95.6	3.1
	Yes	116	15.5	0.5	34	4.4	0.1
English as a First Language	Yes	482	64.4	2.0	636	82.0	2.7
	No	266	35.6	1.1	140	18.0	0.6
Indigenous	No	717	95.9	3.0	747	96.3	3.1
	Yes	18	2.4	0.1	15	1.9	0.1

⁸ Includes candidates who registered from 2016 to 2018. Some unsuccessful candidates from Tables 8 and 9 are included.

	Not disclosed	13	1.7	0.1	14	1.8	0.1
Residential Area	Metropolitan areas	649	86.8	2.7	663	85.4	2.8
	Provincial areas	93	12.4	0.4	107	13.8	0.4
	Remote areas	4	0.5	0.0	2	0.3	0.0
	International	1	0.1	0.0	2	0.3	0.0
	Invalid or Missing	1	0.1	0.0	2	0.3	0.0
Program Type	Undergraduate	549	73.4	2.3	534	68.8	2.2
	Postgraduate	199	26.6	0.8	241	31.1	1.0
	Pathway	0	0.0	0.0	1	0.1	0.0
Program Type by Year Level	Undergraduate 1st year	1	0.1	0.0	0	0.0	0.0
	Undergraduate 2nd year	48	6.4	0.2	33	4.3	0.1
	Undergraduate 3rd year	85	11.4	0.4	59	7.6	0.2
	Undergraduate 4th year	254	34.0	1.1	270	34.8	1.1
	Undergrad 5th yr or above	44	5.9	0.2	55	7.1	0.2
	Undergrad graduated	117	15.6	0.5	117	15.1	0.5
	Postgraduate 1st year	18	2.4	0.1	20	2.6	0.1
	Postgraduate 2nd year	81	10.8	0.3	91	11.7	0.4
	Postgraduate 3rd year	19	2.5	0.1	23	3.0	0.1
	Postgraduate 4th year	5	0.7	0.0	19	2.4	0.1
	Postgrad 5th yr or above	14	1.9	0.1	18	2.3	0.1
	Postgraduate graduated	62	8.3	0.3	70	9.0	0.3
	Pathway 1st year	0	0.0	0.0	0	0.0	0.0
	Pathway 2nd year	0	0.0	0.0	0	0.0	0.0
	Pathway 3rd year	0	0.0	0.0	0	0.0	0.0
	Pathway 4th year	0	0.0	0.0	0	0.0	0.0
	Pathway graduated	0	0.0	0.0	1	0.1	0.0
Course Category	Early childhood	121	16.2	0.5	80	10.3	0.3
	Primary	289	38.6	1.2	373	48.1	1.6
	Secondary	160	21.4	0.7	167	21.5	0.7
	Special education	13	1.7	0.1	13	1.7	0.1
	Other	165	22.1	0.7	143	18.4	0.6

Table 11 shows demographic characteristics of the small number of candidates (201 literacy, 231 numeracy) who were authorised to sit the test four times in 2019. Again, this cohort was mostly female candidates (86% literacy and 88% numeracy). For literacy, the proportions of candidates in this cohort who were international students (11%) or for whom English was not their first language (34%) were considerably higher than the proportions of the first-attempt cohort (7% and 13% respectively).

Table 11: Demographic characteristics of fourth-attempt candidates⁹

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	173	86.1	0.7	204	88.3	0.9
	Male	28	13.9	0.1	27	11.7	0.1
	Indeterminate/intersex	0	0.0	0.0	0	0.0	0.0
Age	17–25	109	54.2	0.5	124	53.7	0.5
	26–30	48	23.9	0.2	54	23.4	0.2
	31–35	12	6.0	0.1	19	8.2	0.1

⁹ Includes candidates who registered from 2016 to 2018. Some unsuccessful candidates from Tables 8–10 are included.

	36–40	14	7.0	0.1	13	5.6	0.1
	41–45	10	5.0	0.0	10	4.3	0.0
	46+	8	4.0	0.0	11	4.8	0.0
International Students	No	179	89.1	0.8	226	97.8	0.9
	Yes	22	10.9	0.1	5	2.2	0.0
English as a First Language	Yes	133	66.2	0.6	197	85.3	0.8
	No	68	33.8	0.3	34	14.7	0.1
Indigenous	No	190	94.5	0.8	224	97.0	0.9
	Yes	7	3.5	0.0	6	2.6	0.0
	Not disclosed	4	2.0	0.0	1	0.4	0.0
Residential Area	Metropolitan areas	169	84.1	0.7	200	86.6	0.8
	Provincial areas	30	14.9	0.1	30	13.0	0.1
	Remote areas	2	1.0	0.0	1	0.4	0.0
	International	0	0.0	0.0	0	0.0	0.0
	Invalid or Missing	0	0.0	0.0	0	0.0	0.0
Program Type	Undergraduate	139	69.2	0.6	156	67.5	0.7
	Postgraduate	62	30.8	0.3	75	32.5	0.3
	Pathway	0	0.0	0.0	0	0.0	0.0
Program Type by Year Level	Undergraduate 1st year	0	0.0	0.0	0	0.0	0.0
	Undergraduate 2nd year	5	2.5	0.0	4	1.7	0.0
	Undergraduate 3rd year	22	10.9	0.1	10	4.3	0.0
	Undergraduate 4th year	52	25.9	0.2	60	26.0	0.3
	Undergrad 5th yr or above	21	10.4	0.1	22	9.5	0.1
	Undergrad graduated	39	19.4	0.2	60	26.0	0.3
	Postgraduate 1st year	2	1.0	0.0	3	1.3	0.0
	Postgraduate 2nd year	17	8.5	0.1	21	9.1	0.1
	Postgraduate 3rd year	2	1.0	0.0	5	2.2	0.0
	Postgraduate 4th year	2	1.0	0.0	4	1.7	0.0
	Postgrad 5th yr or above	6	3.0	0.0	5	2.2	0.0
	Postgraduate graduated	33	16.4	0.1	37	16.0	0.2
Course Category	Early childhood	19	9.5	0.1	27	11.7	0.1
	Primary	94	46.8	0.4	106	45.9	0.4
	Secondary	41	20.4	0.2	51	22.1	0.2
	Special education	1	0.5	0.0	2	0.9	0.0
	Other	46	22.9	0.2	45	19.5	0.2

In 2019, a very small number of candidates (36 for literacy, 42 for numeracy) were granted fifth attempts. While the demographic characteristics of the fifth-attempt cohort are presented in Table 12, the numbers are too small to make any meaningful observations. However, almost all of the fifth-attempt candidates were female and most were undertaking a primary course.

Table 12: Demographic characteristics of fifth-attempt candidates

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	32	88.9	0.1	40	95.2	0.2
	Male	4	11.1	0.0	2	4.8	0.0
	Indeterminate/intersex	0	0.0	0.0	0	0.0	0.0
Age	17–25	17	47.2	0.1	20	47.6	0.1
	26–30	12	33.3	0.1	17	40.5	0.1
	31–35	4	11.1	0.0	2	4.8	0.0
	36–40	0	0.0	0.0	0	0.0	0.0
	41–45	1	2.8	0.0	1	2.4	0.0
	46+	2	5.6	0.0	2	4.8	0.0
International Students	No	35	97.2	0.1	42	100.0	0.2
	Yes	1	2.8	0.0	0	0.0	0.0
English as a First Language	Yes	28	77.8	0.1	37	88.1	0.2
	No	8	22.2	0.0	5	11.9	0.0
Indigenous	No	34	94.4	0.1	40	95.2	0.2
	Yes	1	2.8	0.0	2	4.8	0.0
	Not disclosed	1	2.8	0.0	0	0.0	0.0
Residential Area	Metropolitan areas	29	80.6	0.1	35	83.3	0.1
	Provincial areas	4	11.1	0.0	5	11.9	0.0
	Remote areas	3	8.3	0.0	2	4.8	0.0
	International	0	0.0	0.0	0	0.0	0.0
	Invalid or Missing	0	0.0	0.0	0	0.0	0.0
Program Type	Undergraduate	23	63.9	0.1	32	76.2	0.1
	Postgraduate	13	36.1	0.1	10	23.8	0.0
	Pathway	0	0.0	0.0	0	0.0	0.0
Program Type by Year Level	Undergraduate 1st year	0	0.0	0.0	0	0.0	0.0
	Undergraduate 2nd year	0	0.0	0.0	0	0.0	0.0
	Undergraduate 3rd year	0	0.0	0.0	0	0.0	0.0
	Undergraduate 4th year	3	8.3	0.0	3	7.1	0.0
	Undergrad 5th yr or above	4	11.1	0.0	8	19.0	0.0
	Undergrad graduated	16	44.4	0.1	21	50.0	0.1
	Postgraduate 1st year	0	0.0	0.0	0	0.0	0.0
	Postgraduate 2nd year	2	5.6	0.0	1	2.4	0.0
	Postgraduate 3rd year	1	2.8	0.0	0	0.0	0.0
	Postgraduate 4th year	1	2.8	0.0	0	0.0	0.0
	Postgrad 5th yr or above	0	0.0	0.0	2	4.8	0.0
	Postgraduate graduated	9	25.0	0.0	7	16.7	0.0
Course Category	Early childhood	2	5.6	0.0	3	7.1	0.0
	Primary	19	52.8	0.1	20	47.6	0.1
	Secondary	4	11.1	0.0	6	14.3	0.0
	Special education	1	2.8	0.0	0	0.0	0.0
	Other	10	27.8	0.0	13	31.0	0.1

Table 13 shows the demographic characteristics for the candidates who had achieved no standard at the end of 2019. By the end of 2019, there were 2423 candidates who had not achieved the literacy standard and 2694 candidates who had not achieved the numeracy standard. The demographics of this group are similar to those of the previously described resit cohorts except that this group has the highest proportion

of candidates from early childhood courses (19% for literacy, 17% for numeracy) compared to 8% of the first-attempt cohort.

Table 13: Demographic characteristics of candidates who achieved no standard by the end of 2019

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sittings	N	%	% of Total Sittings
Gender	Female	2007	82.8	8.5	2382	88.4	10.0
	Male	415	17.1	1.8	310	11.5	1.3
	Indeterminate/intersex	1	0.0	0.0	2	0.1	0.0
Age	17–25	1649	68.1	7.0	1761	65.4	7.4
	26–30	345	14.2	1.5	414	15.4	1.7
	31–35	143	5.9	0.6	164	6.1	0.7
	36–40	114	4.7	0.5	118	4.4	0.5
	41–45	84	3.5	0.4	108	4.0	0.5
	46+	88	3.6	0.4	129	4.8	0.5
International Students	No	2066	85.3	8.7	2598	96.4	10.9
	Yes	357	14.7	1.5	96	3.6	0.4
English as a First Language	Yes	1624	67.0	6.9	2226	82.6	9.3
	No	799	33.0	3.4	468	17.4	2.0
Indigenous	No	2315	95.5	9.8	2580	95.8	10.8
	Yes	65	2.7	0.3	73	2.7	0.3
	Not disclosed	43	1.8	0.2	41	1.5	0.2
Residential Area	Metropolitan areas	2065	85.2	8.7	2260	83.9	9.5
	Provincial areas	339	14.0	1.4	400	14.8	1.7
	Remote areas	15	0.6	0.1	27	1.0	0.1
	International	2	0.1	0.0	3	0.1	0.0
	Invalid or Missing	2	0.1	0.0	4	0.1	0.0
Program Type	Undergraduate	1858	76.7	7.8	2032	75.4	8.5
	Postgraduate	531	21.9	2.2	635	23.6	2.7
	Pathway	34	1.4	0.1	27	1.0	0.1
Program Type by Year Level	Undergraduate 1st year	305	12.6	1.3	231	8.6	1.0
	Undergraduate 2nd year	392	16.2	1.7	384	14.3	1.6
	Undergraduate 3rd year	498	20.6	2.1	590	21.9	2.5
	Undergraduate 4th year	372	15.4	1.6	501	18.6	2.1
	Undergrad 5th yr or above	59	2.4	0.2	78	2.9	0.3
	Undergrad graduated	232	9.6	1.0	248	9.2	1.0
	Postgraduate 1st year	191	7.9	0.8	212	7.9	0.9
	Postgraduate 2nd year	146	6.0	0.6	182	6.8	0.8
	Postgraduate 3rd year	19	0.8	0.1	32	1.2	0.1
	Postgraduate 4th year	23	0.9	0.1	42	1.6	0.2
	Postgrad 5th yr or above	23	0.9	0.1	36	1.3	0.2
	Postgraduate graduated	129	5.3	0.5	131	4.9	0.6
	Pathway 1st year	26	1.1	0.1	18	0.7	0.1
	Pathway 2nd year	1	0.0	0.0	1	0.0	0.0

	Pathway 3rd year	1	0.0	0.0	2	0.1	0.0
	Pathway 4th year	2	0.1	0.0	1	0.0	0.0
	Pathway graduated	4	0.2	0.0	5	0.2	0.0
Course Category	Early childhood	448	18.5	1.9	458	17.0	1.9
	Primary	961	39.7	4.1	1146	42.5	4.8
	Secondary	531	21.9	2.2	618	22.9	2.6
	Special education	24	1.0	0.1	31	1.2	0.1
	Other	459	18.9	1.9	441	16.4	1.9

These candidates who had achieved no standard by the end of 2019 had up to five attempts at the test, as shown by Table 14. It is expected that some of these candidates will resit the test again in 2020.

Table 14: Number of attempts by candidates who achieved no standard by the end of 2019

Component	Year of reg'n	At end of	Number of 1-attempt candidates	Number of 2-attempt candidates	Number of 3-attempt candidates	Number of 4-attempt candidates	Number of 5-attempt candidates
Literacy	2016	2017	141	54	24	10	0
	2016	2018	0	6	5	18	5
	2016	2019	0	5	15	5	6
	2017	2018	396	196	153	56	4
	2017	2019	0	45	84	52	14
	2018	2019	672	394	217	43	0
	2019	2019	1391	284	37	3	0
Numeracy	2016	2017	164	79	46	12	0
	2016	2018	0	8	15	28	13
	2016	2019	0	9	11	14	7
	2017	2018	410	232	156	47	4
	2017	2019	0	56	82	51	16
	2018	2019	730	469	220	44	0
	2019	2019	1551	333	45	0	0

Table 15 groups the location of testing in capital cities, regional cities and remote proctoring. It shows that 22% of candidates in 2019 chose to do so by remote proctoring compared to 18% in 2016, 40% in 2017 (when remote proctoring was the only medium available in test window 1) and 24% in 2018. A more detailed breakdown by individual test centre may be found in Appendix 1.

Table 15: Number and proportion of first-attempt candidates who participated at test centres and by remote proctoring

Location of Testing	First Attempt			
	Literacy		Numeracy	
	N	%	N	%
Test Centres	16199	78.4	16217	78.3
– Capital Cities	13994	67.7	13998	67.6
– Regional Cities	2205	10.7	2219	10.7
Remote Proctoring	4471	21.6	4485	21.7
Total	20670	100	20702	100

Table 16 shows how resit candidates were distributed by location of testing in 2019. As in previous years, remote proctoring was increasingly used by resit candidates. For example, in the literacy component, while 22% of first-attempt candidates chose to use remote proctoring in 2019, this rose to 28% of second-attempt candidates, 33% of third-attempt candidates, 38% of fourth-attempt candidates and 50% of fifth-attempt candidates. The pattern was similar for numeracy. Table 16 also shows that the percentage of resit candidates who sat the test at test centres in regional cities in 2019 was reasonably consistent by attempt, ranging between 6% and 9% for both literacy and numeracy.

Table 16: Number and proportion of resit candidates who participated at test centres and by remote proctoring

Location of Testing	Second Attempt				Third Attempt				Fourth Attempt				Fifth Attempt			
	Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Test Centres	1482	72.5	1437	69.8	502	67.1	504	64.9	125	62.2	148	64.1	18	50.0	20	47.6
– Capital Cities	1308	64.0	1285	62.4	447	59.8	438	56.4	113	56.2	134	58.0	15	41.7	18	42.9
– Regional Cities	174	8.5	152	7.4	55	7.4	66	8.5	12	6.0	14	6.1	3	8.3	2	4.8
Remote Proctoring	562	27.5	621	30.2	246	32.9	272	35.1	76	37.8	83	35.9	18	50.0	22	52.4
Total	2044	100	2058	100	748	100	776	100	201	100	231	100	36	100	42	100

2.2 Demographic Characteristics of Candidates by Test Windows

As for 2018, there was little difference in the number and composition of the candidates presenting at each test window, for both literacy and numeracy. While in 2018 more candidates participated in test windows 2 and 3 than in test windows 1 and 4, there was some difference in 2019. While test window 1 continued to have lower numbers in 2019, it was windows 2 and 4 that were the largest.

Subgroups generally followed the same pattern with some differences. For example, postgraduate candidates and candidates enrolled in secondary courses participated most in test window 2 compared to other windows. Undergraduate candidates participated most in test window 4.

Comparing the number of candidates presenting in the two test windows in the first half of 2019 to the those in the second half of 2019 also revealed some subgroup differences. While the majority of candidates enrolled in secondary or special education courses presented in the first half of 2019, the reverse was true for candidates enrolled in early years, primary and other courses, but the differences were small.

Table 17: Demographic characteristics of candidates by test windows – literacy

Characteristic	Category	TW1		TW2		TW3		TW4	
		N	%	N	%	N	%	N	%
Gender	Female	4119	75.1	4422	71.4	4389	75.2	4551	73.6
	Male	1364	24.9	1772	28.6	1443	24.7	1630	26.4
	Indeterminate/intersex	3	0.1	3	0.0	2	0.0	2	0.0
Age	17–25	3700	67.4	4249	68.6	4027	69.0	4077	65.9
	26–30	754	13.7	916	14.8	818	14.0	938	15.2
	31–35	367	6.7	413	6.7	373	6.4	444	7.2
	36–40	280	5.1	270	4.4	291	5.0	319	5.2
	41–45	233	4.2	177	2.9	167	2.9	203	3.3
	46+	152	2.8	172	2.8	158	2.7	202	3.3
International Students	No	5259	95.9	5634	90.9	5335	91.4	5649	91.4
	Yes	227	4.1	563	9.1	499	8.6	534	8.6
English as a First Language	Yes	4837	88.2	5132	82.8	4918	84.3	5189	83.9
	No	649	11.8	1065	17.2	916	15.7	994	16.1
Indigenous	No	5290	96.4	5959	96.2	5620	96.3	5958	96.4
	Yes	106	1.9	111	1.8	112	1.9	119	1.9
	Not disclosed	90	1.6	127	2.0	102	1.7	106	1.7
Residential Area	Metropolitan areas	4386	79.9	5132	82.8	4781	82.0	5218	84.4
	Provincial areas	1052	19.2	1025	16.5	999	17.1	913	14.8
	Remote areas	36	0.7	25	0.4	36	0.6	34	0.5
	International	6	0.1	10	0.2	11	0.2	17	0.3
	Invalid or Missing	6	0.1	5	0.1	7	0.1	1	0.0
Program Type	Undergraduate	3881	70.7	3736	60.3	4039	69.2	4170	67.4
	Postgraduate	1600	29.2	2446	39.5	1762	30.2	1981	32.0
	Pathway	5	0.1	15	0.2	33	0.6	32	0.5
Program Type by Year Level	Undergraduate first year	122	2.2	412	6.6	623	10.7	1060	17.1
	Undergraduate second yr	697	12.7	692	11.2	791	13.6	649	10.5
	Undergraduate third year	1092	19.9	1049	16.9	1486	25.5	1464	23.7
	Undergraduate fourth yr	1600	29.2	1223	19.7	809	13.9	646	10.4

	Undergraduate fifth yr +	128	2.3	143	2.3	103	1.8	109	1.8
	Undergraduate graduated	242	4.4	217	3.5	227	3.9	242	3.9
	Postgraduate first year	409	7.5	1467	23.7	1007	17.3	1193	19.3
	Postgraduate second year	838	15.3	593	9.6	420	7.2	396	6.4
	Postgraduate third year	68	1.2	55	0.9	46	0.8	69	1.1
	Postgraduate fourth year	50	0.9	62	1.0	67	1.1	74	1.2
	Postgraduate fifth year +	57	1.0	75	1.2	60	1.0	52	0.8
	Postgraduate graduated	178	3.2	194	3.1	162	2.8	197	3.2
	Pathway first year	5	0.1	11	0.2	29	0.5	26	0.4
	Pathway second year	0	0.0	1	0.0	0	0.0	1	0.0
	Pathway third year	0	0.0	1	0.0	1	0.0	0	0.0
	Pathway fourth year	0	0.0	2	0.0	1	0.0	0	0.0
	Pathway graduated	0	0.0	0	0.0	2	0.0	5	0.1
Course Category	Early childhood	513	9.4	535	8.6	555	9.5	533	8.6
	Primary	2268	41.3	2275	36.7	2424	41.5	2525	40.8
	Secondary	1936	35.3	2446	39.5	1996	34.2	2211	35.8
	Special education	69	1.3	48	0.8	36	0.6	37	0.6
	Other	700	12.8	893	14.4	823	14.1	877	14.2

The observations and patterns described above for literacy candidates across the four test windows are also pertinent for numeracy, as shown in Table 18.

Table 18: Demographic characteristics of candidates by test windows – numeracy

Characteristic	Category	TW1		TW2		TW3		TW4	
		N	%	N	%	N	%	N	%
Gender	Female	4147	75.7	4475	72.0	4500	76.2	4652	74.9
	Male	1330	24.3	1734	27.9	1400	23.7	1561	25.1
	Indeterminate/intersex	3	0.1	2	0.0	3	0.1	2	0.0
Age	17–25	3711	67.7	4263	68.6	4016	68.0	4059	65.3
	26–30	761	13.9	937	15.1	836	14.2	970	15.6
	31–35	353	6.4	401	6.5	397	6.7	445	7.2
	36–40	269	4.9	272	4.4	298	5.0	313	5.0
	41–45	221	4.0	163	2.6	172	2.9	223	3.6
	46+	165	3.0	175	2.8	184	3.1	205	3.3
International Students	No	5307	96.8	5639	90.8	5508	93.3	5827	93.8
	Yes	173	3.2	572	9.2	395	6.7	388	6.2
English as a First Language	Yes	4935	90.1	5155	83.0	5126	86.8	5383	86.6
	No	545	9.9	1056	17.0	777	13.2	832	13.4
Indigenous	No	5286	96.5	5985	96.4	5691	96.4	5996	96.5
	Yes	106	1.9	109	1.8	118	2.0	107	1.7
	Not disclosed	88	1.6	117	1.9	94	1.6	112	1.8
Residential Area	Metropolitan areas	4378	79.9	5119	82.4	4815	81.6	5249	84.5
	Provincial areas	1047	19.1	1046	16.8	1033	17.5	909	14.6
	Remote areas	38	0.7	29	0.5	36	0.6	39	0.6
	International	9	0.2	11	0.2	12	0.2	15	0.2
	Invalid or Missing	8	0.1	6	0.1	7	0.1	3	0.0
	Undergraduate	3846	70.2	3726	60.0	4085	69.2	4123	66.3

Program Type	Postgraduate	1628	29.7	2479	39.9	1793	30.4	2056	33.1
	Pathway	6	0.1	6	0.1	25	0.4	36	0.6
Program Type by Year Level	Undergraduate first year	115	2.1	419	6.7	617	10.5	1017	16.4
	Undergraduate second yr	674	12.3	652	10.5	772	13.1	642	10.3
	Undergraduate third year	1094	20.0	1053	17.0	1490	25.2	1430	23.0
	Undergraduate fourth yr	1575	28.7	1241	20.0	844	14.3	680	10.9
	Undergraduate fifth yr +	152	2.8	148	2.4	114	1.9	107	1.7
	Undergraduate graduated	236	4.3	213	3.4	248	4.2	247	4.0
	Postgraduate first year	405	7.4	1490	24.0	1005	17.0	1210	19.5
	Postgraduate second year	857	15.6	596	9.6	445	7.5	424	6.8
	Postgraduate third year	78	1.4	60	1.0	43	0.7	76	1.2
	Postgraduate fourth year	53	1.0	67	1.1	66	1.1	91	1.5
	Postgraduate fifth year +	69	1.3	78	1.3	61	1.0	66	1.1
	Postgraduate graduated	166	3.0	188	3.0	173	2.9	189	3.0
	Pathway first year	5	0.1	5	0.1	21	0.4	28	0.5
	Pathway second year	0	0.0	1	0.0	0	0.0	1	0.0
	Pathway third year	0	0.0	0	0.0	2	0.0	0	0.0
	Pathway fourth year	1	0.0	0	0.0	0	0.0	1	0.0
	Pathway graduated	0	0.0	0	0.0	2	0.0	6	0.1
Course Category	Early childhood	482	8.8	535	8.6	574	9.7	482	7.8
	Primary	2305	42.1	2316	37.3	2453	41.6	2588	41.6
	Secondary	1946	35.5	2444	39.3	2027	34.3	2249	36.2
	Special education	68	1.2	47	0.8	40	0.7	35	0.6
	Other	679	12.4	869	14.0	809	13.7	861	13.9

Table 19 and Table 20 show the number and proportion of candidates participating in test centres and by remote proctoring in each test window for literacy and numeracy respectively. As above, the majority of candidates overall present for test windows 2 and 4. However, over the course of the year, the number presenting in regional city test centres trended down while the number using remote proctoring trended up.

For literacy, it can be seen that the proportion of candidates sitting in test centres in capital cities averaged 65% for test windows 1 to 3 but rose to approximately 72% for test window 4, because test centres in regional cities were not provided.

The percentage of candidates sitting the test by remote proctoring rose steadily from 21% in test window 1 to 28% in test window 4. Similar patterns can be seen for numeracy. A more detailed breakdown by test centre can be found in Appendix 2.

Table 19: Number and proportion of candidates in test centres and by remote proctoring by test window – literacy

Location of Testing	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Test Centres	4310	78.6	5067	81.8	4498	77.1	4451	72.0
– Capital Cities	3457	63.0	4181	67.5	3788	64.9	4451	72.0
– Regional Cities	853	15.5	886	14.3	710	12.2	NA	NA
Remote Proctoring	1176	21.4	1130	18.2	1336	22.9	1732	28.0
Total	5486	100	6197	100	5834	100	6183	100

Table 20: Number and proportion of candidates in test centres and by remote proctoring by test window – numeracy

Location of Testing	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Test Centres	4298	78.4	5084	81.9	4507	76.4	4437	71.4
– Capital Cities	3436	62.7	4196	67.6	3804	64.4	4437	71.4
– Regional Cities	862	15.7	888	14.3	703	11.9	NA	NA
Remote Proctoring	1182	21.6	1127	18.1	1396	23.6	1778	28.6
Total	5480	100	6211	100	5903	100	6215	100

2.3 Accessibility and Accommodations

In 2019, 437 candidates required special testing conditions as compared to 277 candidates in 2018. Table 21 indicates the number of accommodations made for the eight most common conditions. A significant increase in requests to accommodate anxiety disorder was evident while the number of requests for dyslexia had declined. A complete list of conditions follows the table.

Table 21: Largest accommodation groups

Condition	Literacy				Numeracy			
	2016	2017	2018	2019	2016	2017	2018	2019
Anxiety disorder (inc. panic attacks)	3	28	30	70	5	31	50	152
Dyslexia	9	28	48	31	9	25	57	36
Diabetes	11	8	12	2	10	9	13	2
Epilepsy/seizures	1	5	3	2	2	6	3	2
Attention Hyper Activity Disorder	1	5	6	2	1	5	6	3
Hearing impairment	2	5	1	2	1	4	5	2
Visual impairment / eye conditions	6	4	7	16	6	5	4	8
Dyscalculia	NA	NA	NA	NA	2	7	2	6

Types of conditions:

- Acquired Brain Injury
- Anxiety, Depression, Panic Attacks
- Asperger Syndrome (High functioning – ASD)
- Asthma
- Autoimmune Disorder
- Auditory Processing Disorder and Visual–Perceptual Dysfunction (Scotopic Sensitivity / Irlen Syndrome)
- Auditory–Verbal Memory Disorder / Language Learning Disability
- Autism Spectrum Disorder
- Bilateral Colobomas
- Bilateral Sensorineural Hearing Loss
- Bilateral Keratoconu
- Brain Tumour/injury
- Carpal Tunnel Syndrome

- Chronic Back Pain
- Congenital Nystagmus (Eye Disorder)
- Chorioretinal coloboma
- Cranial Diabetes Insipidus
- Cystic Fibrosis
- Degenerative Spondylosis
- Diabetes
- Dyslexia, Dyscalculia, ADD
- Endometriosis
- Epilepsy
- Fibromyalgia
- Gardner's Syndrome
- Herniated Discs and Fractured Vertebrae
- High Blood Pressure and Hypoglycaemia
- Hip Dysphasia
- Hypothyroidism
- Idiopathic Intracranial Hypertension
- Irlen Syndrome
- Low Working Memory
- Lymphedema
- Meniere's disease
- Migraine
- Multiple Sclerosis
- Narcolepsy
- Obsessive Compulsive Disorder and Pronounced Exam Phobia
- Phenylketonuria
- Pigmentary Retinopathy with High Myopia and Astigmatism
- Polycystic ovary syndrome
- Profoundly Deaf / Auslan User
- PTSD
- Recovery from Stroke/Cancer
- Retinal detachment
- Rheumatoid Arthritis
- Scotopic Sensitivity
- Scheuermann's Disease
- Supraventricular Tachycardia
- Systemic Lupus Erythematosus
- Temporary physical conditions – e.g. broken leg, broken wrist, back injury
- Tinnitus
- Visual Impairment / Legally Blind

Types of accommodations granted:

- Emergency Action Plan (for Epilepsy – seizures)
- Extra time (20 minutes or more per test component)
- Management of hearing impairment for test sessions conducted by remote proctoring (communication via chat box only)
- Permission to bring blood-insulin monitor, epipen, and/or food and drinks relating to medical condition

- Permission to bring support aids (heat pack, cushion, pillow, essential oil, ergonomic mouse and mobility aids)
- Permission to take medication (e.g. ventolin inhaler and diabetes / glucose monitoring kit)
- Permission to use eye drops
- Permission to use stress balls
- Permission to stand and stretch
- Permission to magnify text and to wear Irlen Spectral Filters / coloured glasses / coloured overlay for the computer monitor
- Permission to use a calculator provided by the test centre
- Permission to use text-to-speech software or screen reader
- Permission to use their own desk lamp
- Permission to wear ear plugs or noise-cancelling headphones during the test session
- Provision of gender-specific remote proctors
- Provision of additional blank scratch paper
- Permission to have an Auslan interpreter
- Provision of a small group test environment (no more than five candidates per test room)
- Provision of a darker test room
- Provision of ergonomic office chair or adjustable desk
- Provision of extra chair to rest or elevate injured leg
- Rest breaks including supervised brief naps (5 mins or more per test component)
- Seated near bathroom
- Seated at the front of the test room (for hearing loss) and other special seating requests for the front and back of the test room, and near the aisle, or away from the lights
- Seated in a quiet room
- Special support for candidates with limited mobility (i.e. limit time standing in the registration queue)
- Test supervisor to provide written assistance during the instructions component of the test sessions.

3. CANDIDATE PERFORMANCE

This section describes the performance of candidates who participated in the test in 2019. The analysis divides the cohort of candidates into two groups: first-attempt candidates (the majority) and those who did not achieve the standard at their first attempt and resat the test. It presents the distributions of candidate performance overall, by subscale and by candidates' collected demographic information: gender, age group, program type, program type by year level, course category, and location of testing.

3.1 Scale Score Distributions

Figure 1 and Figure 2 present the distributions of first-attempt candidate performance on the literacy component and numeracy component respectively. The vertical line in each figure represents the standard for that component of the test.

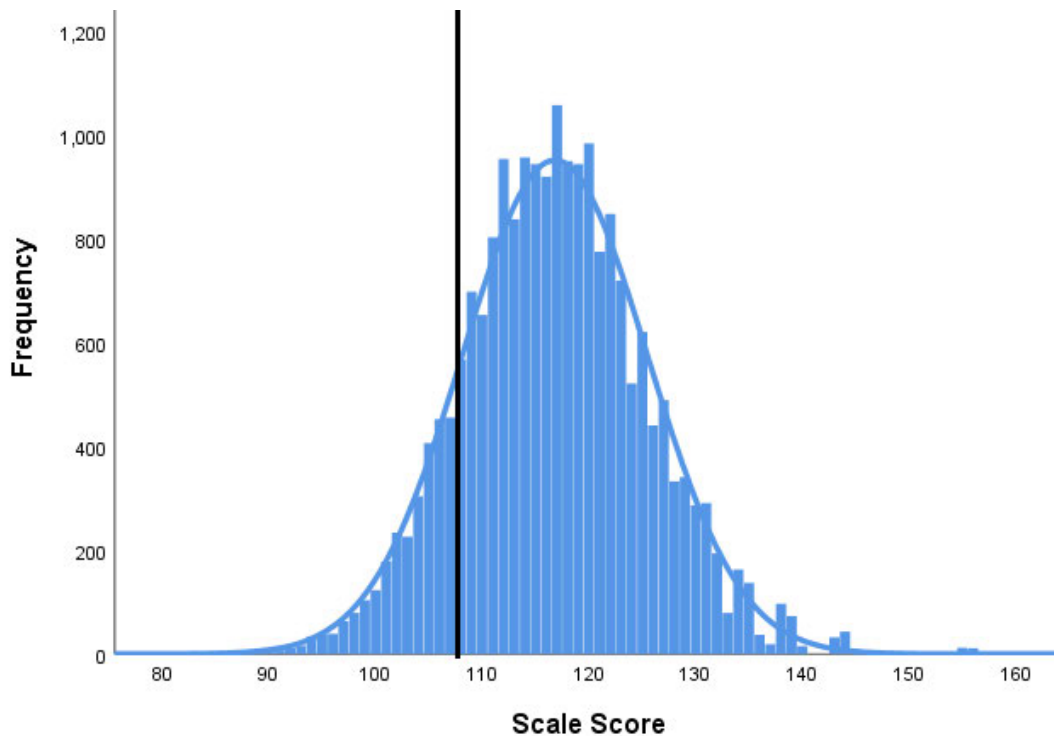


Figure 1: Distribution of candidate scale scores for literacy¹⁰

¹⁰ The scale score of the literacy standard is 107.

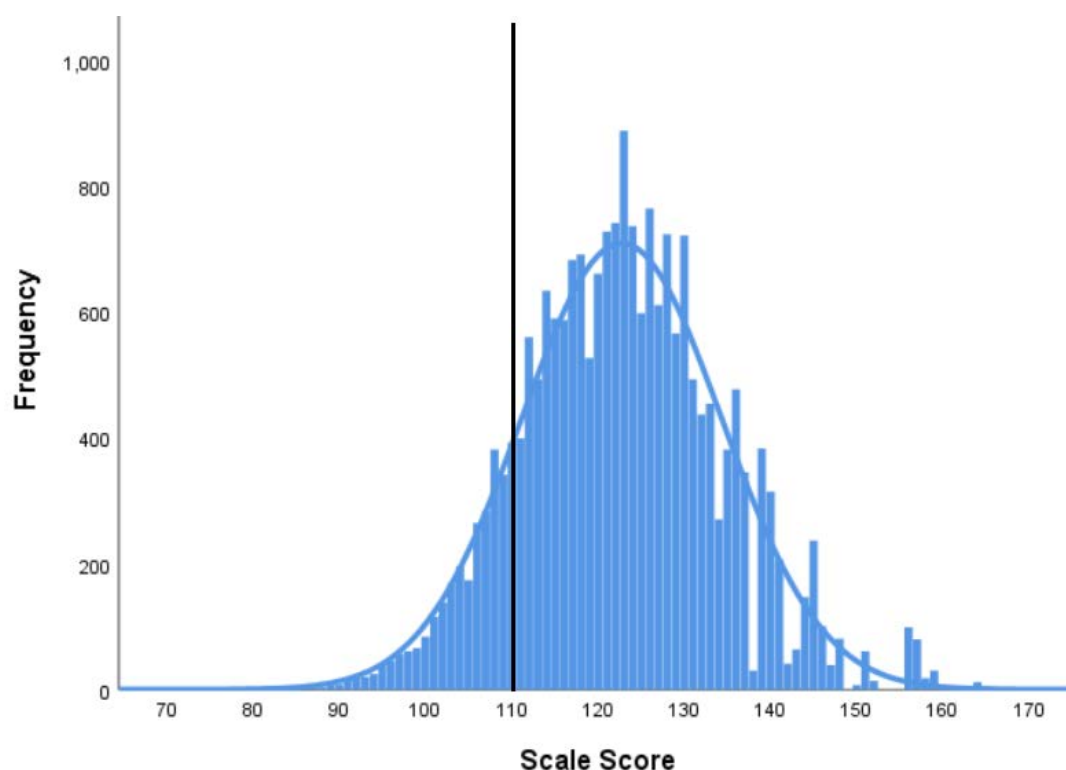


Figure 2: Distribution of candidate scale scores for numeracy¹¹

Figure 1 and Figure 2 show that scores in both tests are approximately normally distributed and that the tests spread candidates acceptably across the score scales. For both literacy and numeracy, the majority of candidates achieved scale scores above the standard at their first attempt. It can be seen that a proportion of candidates achieved scale scores below the standard at their first attempt.

3.2 Candidate Scale Scores by Subscales and Subgroups

Table 22 shows the performance of first-attempt candidates in 2019. It shows the number (N) of candidates, the mean scale scores and standard deviation of the scale scores, overall and by subscale. The pass rates for the literacy and numeracy components for this cohort of candidates are also shown in this table. The overall mean scale score for literacy was 116.8 (similar to 117.5 in 2016 and 117.0 in 2017, and identical to 2018) with a pass rate of 88.7% (down from 93.3% in 2016 and 89.2% in 2017, but up from 87.5% in 2018). The overall mean scale score for numeracy was 122.7 (similar to 122.4 in 2016, 123.0 in 2017 and 122.8 in 2018) with a pass rate of 87.7% (down from 92.4% in 2016 and 90.0 in 2017, but up from 87.4% in 2018). The decline in the pass rates in literacy and numeracy for first-attempt candidates from 2016 and 2017 is because the revised standards applied for the whole of 2018 and 2019 compared to only the second half of 2017.

Table 22 also shows the performance of candidates on each subscale. The performance of candidates by subscale was similar to the performance of candidates on the whole test, except for the numeracy subscale 'calculator not available'. As for previous years, the average performance of candidates on the numeracy subscale 'calculator not available' was lower than the average performance on the numeracy subscale 'calculator available'. The trend over time, however, is that the difference is decreasing. It was 3.5 scale score points in 2017, 2.5 scale score points in 2018 and 1.2 scale score points in 2019. The decrease in difference is mostly due to improving performance on the 'calculator not available' subscale, possibly indicating greater attention to the basic number sense and computational skills required.

¹¹ The scale score of the numeracy standard is 110.

Scale score frequency distributions for the candidates who participated in the tests are shown in Appendix 3.

Table 22: Candidate performance overall and by subscale for first-attempt candidates

Component	Whole test and subscale	N	Mean	S.D.	Pass Rate
Literacy	Overall	20 670	116.8	8.7	88.7
	Reading		117.1	9.2	
	Technical skills of writing		116.3	10.3	
Numeracy	Overall	20 702	122.7	11.6	87.7
	Number & algebra		123.2	13.1	
	Measurement & geometry		121.6	11.8	
	Statistics & probability		122.2	11.5	
	Calculator available		122.9	11.4	
	Calculator not available		121.7	14.6	

Table 23 shows the number of candidates (N), mean scale score, and pass rate by demographic characteristics for both literacy and numeracy. Performance of any subgroup with a sample size of less than 10 was not reported.

Table 23: Performance by demographic characteristics for first-attempt candidates

Characteristic	Category	Literacy			Numeracy		
		N	Mean	Pass Rate	N	Mean	Pass Rate
Gender	Female	14982	116.3	87.4	15001	121.1	85.2
	Male	5679	118.2	92.2	5692	127.1	94.3
	Indeterminate/intersex	9	-	-	9	-	-
Age	17–25	13985	115.7	87.7	14003	122.0	87.2
	26–30	2962	118.3	90.6	2972	124.0	88.6
	31–35	1420	119.4	91.3	1416	125.6	90.7
	36–40	1020	119.3	89.9	1022	124.8	90.1
	41–45	690	119.7	91.2	685	123.6	86.9
	46+	593	120.3	91.2	604	123.2	84.6
International Students	No	19300	117.1	89.8	19306	122.6	87.4
	Yes	1370	112.8	73.8	1396	125.1	91.9
English as a First Language	Yes	17996	117.4	90.9	18001	122.8	88.1
	No	2674	112.5	73.7	2701	122.4	85.0
Indigenous	No	19932	116.8	88.8	19964	122.8	87.8
	Yes	372	114.3	83.9	370	119.1	81.4
	Not disclosed	366	117.5	86.9	368	124.9	91.3
Residential Area	Metropolitan areas	16957	116.8	88.5	16965	122.8	87.6
	Provincial areas	3537	116.9	89.7	3547	122.6	88.3
	Remote areas	117	116.5	89.7	129	119.9	82.2
	International	42	121.7	92.9	43	125.1	93.0
	Invalid or Missing	17	115.8	94.1	18	121.4	94.4
Program Type	Undergraduate	13592	115.4	86.9	13596	121.2	86.0
	Postgraduate	7004	119.6	92.6	7044	125.8	91.4
	Pathway	74	106.8	50.0	62	112.3	59.7
Program Type by Year Level	Undergraduate first year	2151	114.8	84.5	2129	121.9	88.1
	Undergraduate second year	2556	115.0	84.8	2560	121.0	84.7
	Undergraduate third year	4553	115.5	88.4	4577	121.3	86.6

	Undergraduate fourth year	3379	116.4	89.8	3395	121.2	86.0
	Undergraduate fifth year or above	355	116.7	90.1	364	121.1	85.7
	Undergraduate graduated	598	112.6	75.1	571	118.9	78.8
	Postgraduate first year	3934	119.9	93.0	3968	127.0	93.0
	Postgraduate second year	1962	120.4	94.1	1961	125.3	91.0
	Postgraduate third year	197	119.6	91.9	195	123.7	88.7
	Postgraduate fourth year	209	117.3	90.4	220	122.1	85.5
	Postgraduate fifth year or above	203	118.8	91.1	209	123.6	86.1
	Postgraduate graduated	499	115.7	85.0	491	122.0	85.7
	Pathway first year	63	107.1	52.4	52	113.4	63.5
	Pathway second year	2	-	-	2	-	-
	Pathway third year	1	-	-	1	-	-
	Pathway fourth year	2	-	-	2	-	-
	Pathway graduated	6	-	-	5	-	-
Course Category	Early childhood	1660	113.2	76.9	1682	118.1	76.5
	Primary	8293	116.2	88.4	8305	121.6	87.0
	Secondary	7894	118.7	92.7	7909	125.5	91.7
	Special education	154	114.6	83.1	158	118.8	81.0
	Other	2669	115.3	85.2	2648	121.3	85.8

The t-test and Cohen's *d* for effect size were used to determine if group mean scale scores were significantly different for first-attempt candidates. Only differences where $p \leq 0.05$ and $d > 0.2$ or $d < -0.2$ are reported here as significant.

Table 23 shows that the male candidates again significantly outperformed female candidates in both literacy and numeracy, but more so in numeracy. For the 2019 cohort, the literacy mean scale score of male candidates (118.2) was significantly higher (effect size 0.22) than the literacy mean scale score of female candidates (116.3), similar values to 2018. The pass rate of the female candidates on the literacy component (87.4%) was considerably lower than that of the male candidates (92.2%). For numeracy, the difference was even greater. The numeracy mean scale score of the male candidates (127.1) was significantly higher (effect size 0.54) than that of the female candidates (121.1). The pass rate of the female candidates on the numeracy component (85.2%) was considerably lower than that of the male candidates (94.3 %).

As for previous years, achievement on the literacy test tended to increase with the age of the candidates, but this was less evident for numeracy. For literacy, the youngest group of candidates aged 17–25 (mean scale score 115.7) achieved significantly lower (effect size 0.37) than candidates aged over 25 (119.0). As for 2017, the numeracy mean scale score of candidates aged over 25 was greater than that of those aged 17–25 (124.3 to 122.0). Unlike 2018, the difference was significant (effect size 0.20). Unlike previous years, the relatively lower numeracy achievement of the 46+ age group was not evident.

As for 2017 and 2018, the mean scale score of international candidates (112.8) for literacy was significantly lower (effect size 0.48) than the mean scale score of other candidates (117.1). The reverse was true for numeracy. For numeracy, the mean scale score of international candidates (125.1) was significantly higher (effect size 0.22) than the mean scale score of other candidates (122.6). These findings were quite similar to those in 2018.

As for 2017 and 2018, the mean scale score of candidates for whom English was a first language for literacy (117.4) was significantly higher (effect size 0.56) than the mean scale score for literacy of other candidates (112.6). However, again as for 2017 and 2018, the same was not true for numeracy where the mean scale scores (122.8 and 122.4 respectively) were not significantly different.

As for 2017 and 2018, for both literacy and numeracy, the mean scale score of candidates who identified as Aboriginal or Torres Strait Islander was significantly lower (effect size 0.30 and 0.31 respectively) than for other candidates. For literacy, the mean scale scores were 114.3 (similar to 113.8 in 2017 and 114.6 in 2018) and 116.8 respectively; and for numeracy, 119.1 (similar to 118.0 in 2017 and 119.2 in 2018) and 122.8 respectively. However, it is worth noting that the pass rate of first-attempt candidates who identified as Aboriginal or Torres Strait Islander were still relatively high at 84% (up from 81% in 2017 and 83% in 2018) for literacy and 81% for numeracy (down slightly from 83% in 2018). For literacy, the pass rate of candidates identifying as Aboriginal or Torres Strait Islander was higher than that of international candidates (74%) and candidates for whom English was not a first language (74%).

Residential postcode data were used to place candidates into three main categories: metropolitan, provincial and remote. Where postcodes could not be matched to an indicator they were categorised as missing or invalid. As for 2017 and 2018, for both literacy and numeracy, there was little difference in achievement by Australian residential areas (metropolitan, provincial and remote). While in 2017, for both literacy and numeracy, the mean scale scores of candidates with an international residential postcode were significantly higher than those of candidates who gave an Australian residential postcode, this was not true in 2018; however, it was true for 2019. That is, for literacy, candidates with an international postcode achieved significantly higher scores than candidates with remote or metropolitan postcodes (121.7 compared to 116.5 and 116.8, effect sizes 0.66 and 0.61 respectively). For numeracy, the mean scale score of candidates with remote postcodes was significantly lower than that for candidates with international postcodes and also those with regional postcodes (119.9 compared to 125.1 and 122.7, effect sizes 0.47 and 0.24 respectively).

As for previous years, for both literacy and numeracy, the mean scale scores of postgraduate candidates were significantly higher in 2019 than for undergraduate candidates. For literacy the mean scale scores were 119.6 and 115.4 respectively with an effect size of 0.49. For numeracy, 125.8 and 121.2 respectively, effect size 0.40. The difference in mean scale scores was approximately 4 scale score points for both components.

In 2019, some Higher Education Providers provided 'Pathways' courses for those considering teaching who don't meet the state-based requirements for entry into initial teacher education courses. The mean scale scores of candidates enrolled in Pathways courses were significantly lower than the mean scale scores of undergraduate candidates for both literacy and numeracy. For literacy, the mean scale score of the 74 Pathways candidates (106.8) was just below the standard (107) and nearly 9 scale score points below the mean scale score of undergraduate candidates (115.4), effect size 1.10. For numeracy, the mean scale score of the 62 Pathways candidates (112.3) was above the standard (110) but also nearly 9 scale score points below the mean scale score of undergraduate candidates (121.2), effect size 0.82.

As for 2018, for literacy, the mean scale scores of undergraduate candidates increased with the year of the course, ranging from 114.8 for first-year undergraduates to 116.7 for fourth-year undergraduates. There was no such pattern for numeracy in 2019 (as per 2018). For postgraduate candidates, there was no pattern for literacy in 2019; however, for numeracy, mean scale scores declined as the year of the course increased, from 127.0 for first-year postgraduates to 121.1 for fourth-year postgraduates.

As for previous years, for both literacy and numeracy, the mean scale scores of candidates in the secondary education course category were significantly higher than those of candidates in the other four course categories, with the greatest differences occurring for numeracy. For literacy, there was a 5.5 scale score point difference between the secondary cohort (118.7) and the early years cohort (113.2), and a 3.0 scale score point difference between the primary cohort (116.2) and the early years cohort (113.2).

For numeracy, there was a 7.4 scale score point difference between the secondary cohort (125.5) and the early years cohort (118.1), and a 3.0 scale score point difference between the primary cohort (121.6) and the early years cohort (118.1). The effect sizes for these differences ranged between 0.3 and 0.5.

Table 24 summarises the significant differences in mean scale scores for the eight demographic characteristics.

Table 24: Subgroups showing significantly higher mean scale scores

Characteristic	Literacy	Numeracy
Gender	males	
Age	above 25 years (stronger effect in literacy)	
International	domestic	international
Language background	English as first language	none
Indigeneity	non-Indigenous	
Residential location	international	
Program type	postgraduate	
Course category	secondary > primary > early childhood	

In addition to comparing cohorts by mean scale scores, Figure 3 to Figure 6 display scale score distributions for first-attempt candidates in 2019. The left panel of each figure shows literacy scale score distributions and the right panel of each figure shows numeracy scale score distributions. The horizontal lines in each figure represent the standard scale score for each component of the test.

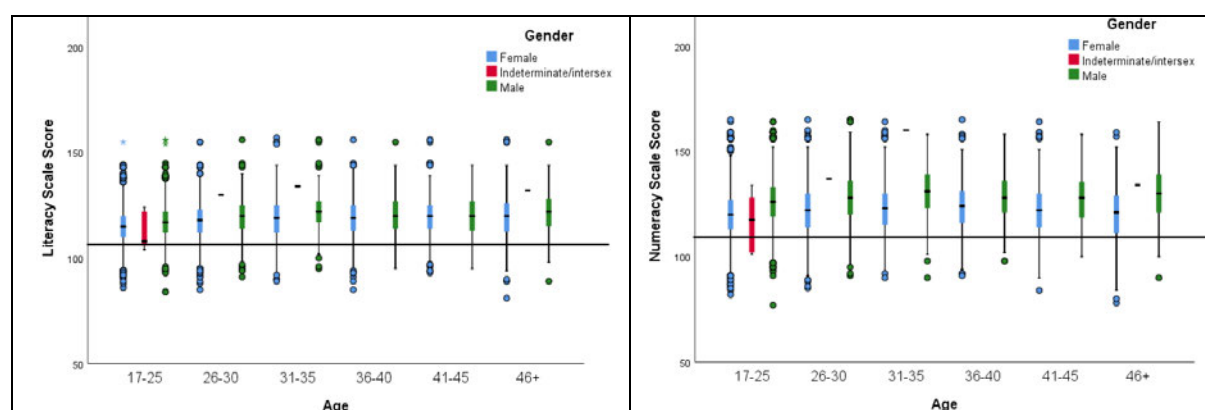


Figure 3: Score distribution by gender and age

Figure 3 shows that, for all age groups, the difference in achievement between male candidates and female candidates is more pronounced for numeracy than for literacy. However, in each age category and for male or female, there are candidates who achieve well above the standard.

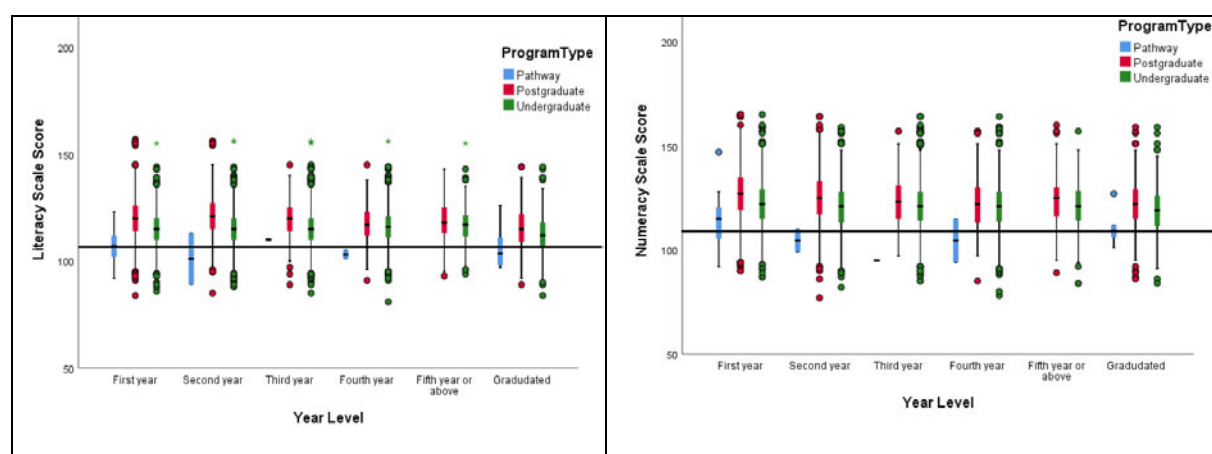


Figure 4: Score distribution by program type and year level

Figure 4 shows that, for all year levels, the difference in achievement between postgraduate candidates and undergraduate candidates is similar for literacy and numeracy, with the achievement of postgraduate candidates higher than that of undergraduate candidates. While the achievement of the Pathways cohort is low for both components, it can be seen that there are a small number of candidates with scores above the standard.

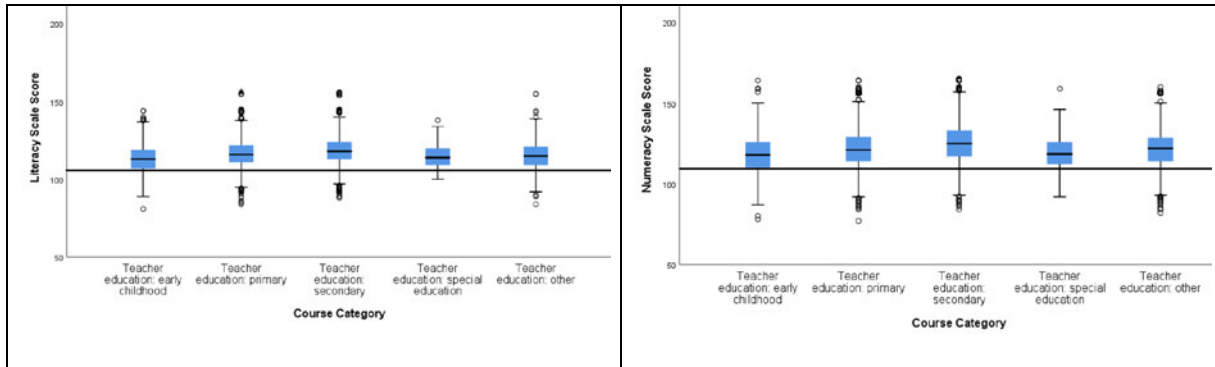


Figure 5: Score distribution by course category

Figure 5 shows that, although candidates in secondary education courses achieve highest in both literacy and numeracy, there are candidates who achieve well above the standard in each of the other courses. For example, for both literacy and numeracy, the achievement of the top 25% of candidates in the early childhood category is broadly equivalent to the top 50% of candidates in the secondary category.

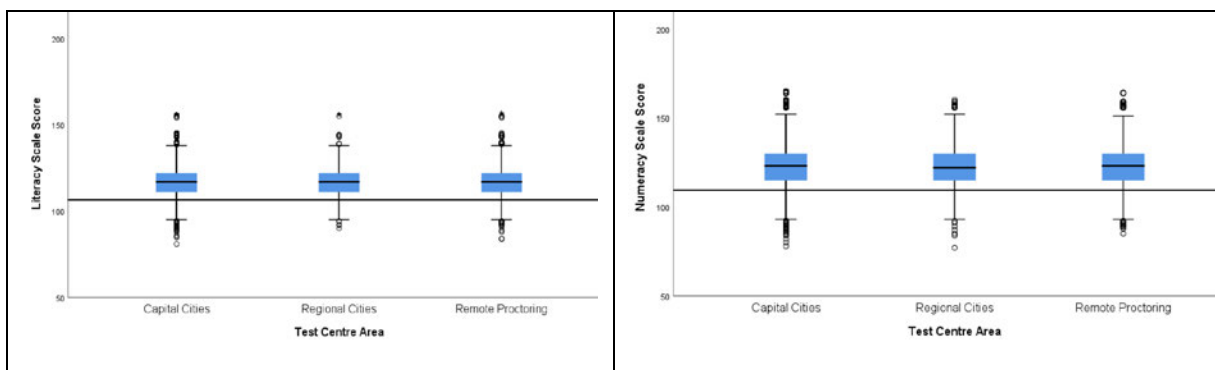


Figure 6: Score distribution by location of testing

Figure 6 shows that for test centres in capital cities and regional cities, and for remote proctoring, for both literacy and numeracy, the distributions are very similar and there are candidates in each category who achieve well above the standard.

3.3 Candidate performance by test centres and remote proctoring

Table 25 shows the performance by test centres and remote proctoring. For literacy, the 129 candidates at the Hobart test centre had the highest mean scale score (119.9 compared to 123.0 in 2018, 120.8 in 2017 and 123.2 in 2016). While the Hobart cohort also had the highest mean scale score (127.2) on the numeracy component in 2018, this was not the case in 2019. In 2019, the highest mean scale score for numeracy (125.6) was achieved by the 184 candidates at the Wollongong test centre.

Compared to 2018, there were some declines in mean scale scores for both components at a small number of centres. For literacy, the mean scale scores of the Darwin, Hobart and Cairns cohorts declined by 5.4, 3.1 and 3.1 scale score points respectively. For numeracy, the mean scale scores of the Mildura, Bathurst and Hobart cohorts declined by 4.7, 4.5 and 3.6 scale score points respectively. However, given the relatively small numbers of candidates presenting at each of these cohorts (29 to 134), these declines should be interpreted with caution.

It can be seen from the last three rows of Table 25 that the performance of candidates using remote proctoring was very similar to the performance of candidates who took tests in capital city test centres and regional city test centres, with less than one scale score point separating the mean scale scores of the three groups for both test components. Pass rates were also very similar.

Table 25: Performance by test centres and remote proctoring

Test Centre	Literacy				Numeracy			
	N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Adelaide CBD	2398	115.2	8.7	84.2	2371	120.2	11.7	81.6
Armidale (NSW)	56	118.6	8.1	92.9	57	124.1	12.7	86.0
Ballarat	339	115.5	8.7	85.0	337	120.9	11.0	86.4
Bathurst	25	114.8	8.2	84.0	30	119.0	6.7	93.3
Brisbane CBD	2663	116.9	8.3	89.9	2663	122.9	10.9	90.2
Cairns	33	117.4	8.0	97.0	33	123.4	8.6	97.0
Canberra CBD	333	118.0	8.8	89.8	335	124.2	12.1	89.0
Darwin	52	114.5	9.8	76.9	60	121.5	10.3	88.3
Geelong	67	116.6	7.7	91.0	67	123.0	10.4	91.0
Gold Coast	131	116.5	8.9	84.0	140	121.9	11.6	87.1
Granville (NSW)	506	114.8	8.3	82.2	504	120.8	11.8	83.9
Hobart	129	119.9	9.5	91.5	134	123.6	12.4	87.3
Melbourne CBD	4319	116.4	8.9	87.4	4318	122.7	11.8	87.1
Mildura	26	115.7	6.3	92.3	29	118.6	10.3	75.9
Newcastle	432	117.9	8.1	93.8	423	125.0	11.4	92.2
Perth CBD	1098	118.5	8.7	93.1	1098	124.8	11.8	90.8
Reasonable Adjustments	12	114.0	7.2	83.3	13	116.4	12.0	76.9
Rockhampton	32	118.7	8.5	93.8	32	121.9	10.7	93.8
Sunshine Coast/Maroochydore	152	118.2	8.0	94.7	155	123.2	10.9	90.3
Sydney CBD	2990	117.6	8.6	90.7	3006	124.0	11.8	89.7
Townsville	96	116.1	7.2	93.8	100	121.8	11.6	81.0
Wagga Wagga	19	118.2	6.7	100.0	19	123.3	10.8	94.7
Warrnambool	34	116.6	7.1	91.2	33	124.9	10.6	97.0
Wodonga	76	119.1	7.8	96.1	76	124.6	9.4	96.1
Wollongong	181	117.7	8.3	90.6	184	125.6	12.0	92.4
Remote Proctoring	4471	116.9	8.6	89.1	4485	122.6	11.5	87.6
Capital Cities	13994	116.8	8.7	88.5	13998	122.8	11.7	87.7
Regional Cities	2205	116.6	8.3	88.9	2219	122.7	11.4	88.4

3.4 Candidates who did not achieve the standard after one attempt

Table 26 shows the number and proportion of candidates who did not achieve the test standard in 2019 after one attempt. The proportion of first-attempt candidates who did not achieve the standard on the literacy component was 11.3% (down from 12.5% in 2018). The proportion of first-attempt candidates who did not achieve the standard on the numeracy component was 12.3% (similar to the proportion in 2018 or 12.6%). The percentage of first-attempt candidates who did not achieve either standard in 2019 was 5.1% (similar to the proportion in 2018 of 5.8%).

Table 26: Number and proportion of first-attempt candidates who did not achieve the standard

	Number	Percentage
Candidates who did not achieve the literacy standard	2336	11.3
Candidates who did not achieve the numeracy standard	2540	12.3
Candidates who did not achieve the literacy and the numeracy standard	1011	5.1

3.5 Performance of Resit Candidates

Table 27 shows the performance of candidates who had multiple attempts at the test, overall and by subscale. As expected, the performance of resit candidates was lower than the performance of the majority of candidates who achieved the standard at their first attempt. For example, for the 2044 second-attempt candidates for literacy in 2019, their overall mean scale score was 106.9 with a pass rate of 55.2% (compared to 116.8 and 88.7% for first-attempt candidates in 2018). For the 2058 second-attempt candidates for numeracy in 2019, their overall mean scale score for numeracy was 109.1 with a pass rate of 49.3% (compared to 122.7 and 87.7% for first-attempt candidates in 2018).

As for previous years, it can be seen from Table 27 that pass rates for literacy declined steadily with each attempt, from 55% down to 44%. This was not the case for numeracy, however, which was steadier around 50%.

As for 2018, for the literacy subscales, the mean scale score of resit candidates was similar for reading and technical skills of writing; however, third- and fourth-attempt candidates tended to do relatively better on technical skills of writing than on reading. For the numeracy subscales, as for previous years, the mean scores of resit candidates on the 'number & algebra' and 'calculator not available' subscales were lower than the mean scores of resit candidates on the other three numeracy subscales, suggesting these are the numeracy skills where resit candidates need most support. Unlike previous years, the resit cohorts did not show a decline in overall mean scale score by resit, possibly reflecting the availability of more practice materials in 2019.

Table 27: Resit candidate performance overall and by subscale

Component	Whole test and subscale	Second Attempt			Third Attempt			Fourth Attempt			Fifth Attempt		
		(Resit 1)			(Resit 2)			(Resit 3)			(Resit 4)		
		N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Literacy	Overall	2044	106.9	55.2	748	106.3	47.2	201	106.4	45.3	36	106.1	44.4
	Reading		107.2			106.3			105.8			106.0	
	Technical skills of writing		106.5			106.5			107.8			106.6	
Numeracy	Overall	2058	109.1	49.3	776	109.0	49.5	231	110.3	50.2	42	110.4	45.2
	Number & algebra		108.1			108.3			109.9			111.0	
	Measurement & geometry		109.3			109.2			110.7			110.1	
	Statistics & probability		110.8			110.3			111.0			109.5	
	Calculator available		109.7			109.6			110.5			110.1	
	Calculator not available		106.8			106.9			109.6			111.2	

It can be seen from Table 28 that for both literacy and numeracy, despite the availability of more practice materials in 2019, that there is very little difference in the mean scale score change between first and second attempts regardless of the time taken between the attempts.

Table 28: Change in scale score between first and second attempts by time

Component	Mean score change (scale score points)				
	Less than 2 mths	From 2 to <4 mths	From 4 to <6 mths	More than 6 mths	All
Literacy	4.2	4.1	4.0	4.2	4.1
Numeracy	4.9	5.0	4.6	4.8	4.8

Overall, each second-attempt cohort in 2019 improved their scales scores (4.1 points for literacy and 4.8 points for numeracy). However, after taking performance (Band level *after* second attempt) into account, it can be seen from Table 29 that the change in scale scores was not uniform. The mean score change of the least able cohort (those with second-attempt scores below Band 1) was negative (6.7 scale score points for literacy and negative 2.3 scale score points for numeracy). That is, the mean scale score of the candidates below Band 1 was lower at second attempt than it was at first attempt. In general, the higher the performance of the second-attempt candidates, the more they were able to improve their scores between their first and second attempts.

Table 29: Change in scale score between first and second attempts by performance (Band)

Component	Mean score change (scale score points)				
	Below Band 1	Band 1	Band 2	Band 3 and above	All
Literacy	-6.7	1.0	6.8	21.7	4.1
Numeracy	-2.3	1.9	7.9	23.3	4.8

The findings above suggest that it is more likely that the change in score between first and second attempts is explained more by performance than it is by the time between testing.

Additional analysis investigated the impact of resit candidates on pass rates. Table 30 categorises candidates by their most recent result by the end of 2019. Table 30 shows that for literacy, the pass rates in 2019 were 92.2% for no-resit (first-attempt) candidates and ranged from 44% to 66% for resit candidates. For numeracy, the pass rates in 2019 were similar to literacy; that is, 92.0% for no-resit candidates and ranging from 45% to 60% for resit candidates. Overall, in 2019, the performance of resit candidates ‘reduced’ the pass rate by 3.7% in literacy (from 92.9% to 89.2%) and by 4.1% in numeracy (from 92.1% to 88.0%), very similar to 2018.

Table 30: Candidate performance by number of test sittings in 2016–19

Component	Year	Number of Test Sittings	Number of Unique Candidates	Standard Achieved	Standard Not Achieved	Pass Rate
Literacy	2016	1 (no resits)	12351	12210	141	98.9
		2	255	230	25	90.2
		3	20	19	1	95.0
		All	12626	12459	167	98.7
	2017	1 (no resits)	21258	20862	396	98.1
		2	904	796	108	88.1
		3	175	119	56	68.0
		4	25	14	11	56.0
		All	22362	21791	571	97.4
	2018	1 (no resits)	19973	19301	672	96.6
		2	1307	1038	269	79.4
		3	449	298	151	66.4
		4	126	52	74	41.3
		5	12	3	9	25.0
		All	21867	20692	1175	94.6
	2019	1 (no resits)	19725	18334	1391	92.9
		2	1711	1129	582	66.0
		3	680	353	327	51.9
		4	193	91	102	47.2
		5	36	16	20	44.4
		All	22345	19923	2422	89.2
Numeracy	2016	1 (no resits)	12246	12082	164	98.7
		2	264	224	40	84.8
		3	27	16	11	59.3
		4	2	2	0	100.0

	All	12539	12324	215	98.3
2017	1 (no resits)	21521	21111	410	98.1
	2	817	683	134	83.6
	3	198	141	57	71.2
	4	31	17	14	54.8
	All	22567	21952	615	97.3
2018	1 (no resits)	19955	19225	730	96.3
	2	1224	903	321	73.8
	3	427	242	185	56.7
	4	130	55	75	42.3
	5	27	10	17	37.0
	All	21763	20435	1328	93.9
2019	1 (no resits)	19712	18161	1551	92.1
	2	1705	1014	691	59.5
	3	706	384	322	54.4
	4	223	116	107	52.0
	5	42	19	23	45.2
	All	22388	19694	2694	88.0

It is pleasing to note, however, that the mean scale score of 2nd-, 3rd- and 4th-attempt cohorts showed significant improvement in 2019 for several strands compared to 2018. This was more evident in the numeracy component than the literacy component, as shown by Table 31.

Table 31: Improved achievement of 2019 resit cohorts by domain and strand

Domain	Attempt	Strand	2018 mean	2018 N	2019 mean	2019 N	Increase
Literacy	4	Overall	104.8	158	106.4	201	1.6
Literacy	4	Reading	104.2	158	105.9	201	1.6
Literacy	4	TSW	105.8	158	107.8	201	2.0
Numeracy	2	Calculator not available	103.9	1995	106.8	2058	2.9
Numeracy	3	Number and algebra	106.2	658	108.3	776	2.1
Numeracy	3	Calculator not available	104.6	658	106.9	776	2.3
Numeracy	4	Overall	107.3	175	110.3	231	3.0
Numeracy	4	Number and algebra	106.0	175	109.9	231	3.9
Numeracy	4	Measurement and geometry	107.9	175	110.7	231	2.8
Numeracy	4	Statistics and probability	108.8	175	111.0	231	2.2
Numeracy	4	Calculator available	107.9	175	110.5	231	2.6
Numeracy	4	Calculator not available	104.8	175	109.6	231	4.8

For literacy, the mean scale score of the 4th-attempt cohort showed significant improvement of between 1.6 and 2 scale score points from 2018 to 2019 and moved closer to the literacy standard of 107 scale score points. The largest increase was for the technical skills of writing strand.

For numeracy, the 4th-attempt cohort also showed significant improvement of between 2.2 and 4.8 scale score points from 2018 to 2019 and moved closer to or exceeded the numeracy standard of 110 scale score points. The largest increase was for the calculator not available strand.

For numeracy, the 2nd- and 3rd- attempt cohorts also showed significant improvement in mean scale scores for the calculator not available strand of 2.9 and 2.3 scale score points respectively. There was a significant improvement in the mean scale score of the 3rd-attempt cohort for the number and algebra strand of 2.1 scale score points. It is possible that these improvements are related to the release of practice test materials, worked solutions and retired test questions during the second half of 2019.

4. CANDIDATE PERFORMANCE BY TEST WINDOWS

This section presents candidate performance by test window. The performance of resit candidates is also described by test window.

4.1 Distributions of Candidate Scale Scores by Subscale and Test Window

Table 32 shows the performance of all candidates (first-attempt and resits) who sat the test for each test window in 2019. Unlike 2018, where the overall mean scale scores for literacy and numeracy declined steadily from test window 1 to test window 4, in 2019 they remained quite constant across the four test windows.

There was also little variation across the test windows in relation to subscale mean scale scores, apart from numeracy where mean subscale scores for the ‘calculator not available’ subscale tended to increase from test window 1 (118.3) to test window 4 (120.7), perhaps reflecting the release of worked solutions during 2019.

Table 32: Candidate performance by test window, overall and by subscale

Component	Test Window	Whole test and subscale	N	Mean	S.D.	Pass Rate
Literacy	TW1	Overall	5486	115.7	9.2	83.4
		Reading		116.4	9.8	
		Technical skills of writing		114.3	10.6	
	TW2	Overall	6197	116.0	9.4	84.1
		Reading		116.5	9.8	
		Technical skills of writing		115.0	11.0	
	TW3	Overall	5834	115.1	8.6	83.9
		Reading		115.0	9.1	
		Technical skills of writing		115.4	10.2	
	TW4	Overall	6183	115.2	8.6	84.7
		Reading		115.1	9.1	
		Technical skills of writing		115.3	10.2	
Numeracy	TW1	Overall	5480	120.3	12.1	81.5
		Number & algebra		120.2	13.5	
		Measurement & geometry		119.7	12.3	
		Statistics & probability		120.4	11.6	
		Calculator available		120.7	11.8	
		Calculator not available		118.3	15.0	
	TW2	Overall	6211	121.3	12.4	82.0
		Number & algebra		121.4	13.8	
		Measurement & geometry		120.4	12.5	
		Statistics & probability		121.1	11.9	
		Calculator available		121.5	12.0	
		Calculator not available		119.6	15.0	
	TW3	Overall	5903	120.9	11.9	82.7
		Number & algebra		121.5	13.6	
		Measurement & geometry		119.7	12.0	
		Statistics & probability		120.3	11.8	
		Calculator available		120.9	11.7	

		Calculator not available		120.5	15.0	
	TW4	Overall	6215	121.3	11.8	84.5
		Number & algebra		121.7	13.3	
		Measurement & geometry		120.2	11.9	
		Statistics & probability		120.9	12.0	
		Calculator available		121.4	11.6	
		Calculator not available		120.7	15.1	

Appendix 4 provides a detailed analysis of candidate performance by demographic characteristics and test windows. Candidate performance of any subgroup with a sample size less than 10 was not reported.

Appendix 5 provides a detailed analysis of performance by test centres and remote proctoring by test window. The distributions of candidate performance within a subgroup were similar across test windows.

Table 33 shows the proportion of candidates by test window who did not achieve the standard in 2019 after one or more attempts. There were no clear patterns in numbers and percentages of these groups across the test windows.

Table 33: Number and proportion of candidates who did not achieve the standard by test window

Test Window	Component	Number	% of Candidates
TW1	Literacy	908	16.6
	Numeracy	1012	18.5
	Both ¹²	383	8.2
TW2	Literacy	986	15.9
	Numeracy	1116	18.0
	Both	403	7.8
TW3	Literacy	938	16.1
	Numeracy	1023	17.3
	Both	332	6.8
TW4	Literacy	945	15.3
	Numeracy	963	15.5
	Both	291	5.8

¹² A subset of literacy and numeracy.

4.2 Performance of Resit Candidates by Test Window

The same was true for pass rates, except for test windows 3 and 4, where the pass rates increased slightly. As for previous years, it can be seen that the difference in mean scale scores for the ‘calculator available’ and the ‘calculator not available’ subscales was relatively large, although in 2019 it was pleasing to see the gap close in test windows 3 and 4 from one resit to the next.

In 2019, the pass rates of the third-attempt candidates on the literacy component were between 42% and 52%, similar to those in 2018 (41% and 55%). The pass rates of the third-attempt candidates on the numeracy component were between 41% and 57%, higher than those in 2018 (23% and 44%).

The number of fourth-attempt candidates increased in 2019. For literacy, there were 201 fourth-attempt candidates in 2019 (compared to 157 in 2018), an increase of 28%, with pass rates ranging from 33% to 51%. For numeracy, there were 231 fourth-attempt candidates in 2019 (compared to 174 in 2018), an increase of 33%, with pass rates ranging from 39% to 63%.

The number of fifth-attempt candidates in 2019 was too small (36 for literacy and 42 for numeracy) to report meaningful pass rates; however, the pass rates of fifth-attempt candidates appear to be in the order of 40% for literacy and 60% for numeracy.

Table 34 and Table 35 show the performance of resit candidates overall and by subscale, and by test attempt, for each test window. In each test window, the overall mean scale scores of resit candidates who had a second attempt (resit 1) were close to but below the standard in both literacy (107) and numeracy (110), except for test window 4 for numeracy where the mean was slightly above the standard.

For literacy, the candidates who sat the test for the third time (resit 2) had similar but slightly lower overall mean scores to those candidates who sat the test for the second time, as for 2018. The pass rates of the third-attempt (resit 2) candidates also tended to be lower than the second-attempt (resit 1) candidates.

For numeracy, the overall mean scores of candidates who sat the numeracy component for the third time were similar to the overall mean scale scores of those candidates who sat the test for the second time.

Table 34: Resit candidate performance by test window, overall and by subscale, for literacy

Component	Test Window	Whole test and subscale	Second Attempt (Resit 1)			Third Attempt (Resit 2)			Fourth Attempt (Resit 3)			Fifth Attempt (Resit 4)		
			N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Literacy	TW1	Overall	515	106.6	51.7	172	106.3	47.1	30	104.9	33.3	6	-	-
		Reading		107.1			106.5			104.4			-	
		Technical skills of writing		105.5			105.5			105.8			-	
	TW2	Overall	476	106.7	54.6	209	106.3	46.4	71	106.7	50.7	7	-	-
		Reading		107.4			106.6			106.2			-	
		Technical skills of writing		105.5			105.8			108.2			-	
	TW3	Overall	475	107.0	54.7	142	105.8	41.5	36	106.2	41.7	10	104.5	40.0
		Reading		106.9			105.5			105.5			104.0	
		Technical skills of writing		107.5			106.7			107.5			105.7	
	TW4	Overall	578	107.3	59.3	225	106.8	51.6	64	107.0	46.9	13	107.5	38.5
		Reading		107.3			106.4			106.3			107.3	
		Technical skills of writing		107.3			107.7			108.5			108.7	

Table 35: Resit candidate performance by test window, overall and by subscale, for numeracy

Component	Test Window	Whole test and subscale	Second Attempt (Resit 1)			Third Attempt (Resit 2)			Fourth Attempt (Resit 3)			Fifth Attempt (Resit 4)		
			N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Numeracy	TW1	Overall	484	108.8	49.0	175	108.5	48.0	43	109.0	46.5	6	-	-
		Number & algebra		107.3			107.3			107.8			-	
		Measurement & geometry		109.3			108.5			110.3			-	
		Statistics & probability		111.1			110.8			110.4			-	
		Calculator available		109.5			109.2			109.3			-	
		Calculator not available		105.9			105.4			107.6			-	
	TW2	Overall	534	108.4	43.8	196	108.0	41.3	55	109.3	45.5	6	-	-
		Number & algebra		107.4			106.8			108.9			-	
		Measurement & geometry		108.5			108.4			109.9			-	
		Statistics & probability		110.3			109.8			109.7			-	
		Calculator available		109.2			108.9			109.7			-	
		Calculator not available		104.9			104.7			107.8			-	
	TW3	Overall	478	109.1	48.7	161	109.4	49.7	52	109.0	38.5	14	110.9	57.1
		Number & algebra		108.5			109.4			108.2			111.4	
		Measurement & geometry		109.1			109.0			108.9			111.5	
		Statistics & probability		110.0			110.1			110.1			109.0	
		Calculator available		109.3			109.7			108.9			110.9	
		Calculator not available		107.9			108.7			108.7			110.1	
	TW4	Overall	562	110.2	55.2	244	110.0	57.0	81	112.5	63.0	16	113.4	62.5
		Number & algebra		109.3			109.6			112.8			114.7	
		Measurement & geometry		110.2			110.5			112.7			113.3	
		Statistics & probability		111.8			110.4			112.7			111.8	
		Calculator available		110.7			110.4			112.6			112.9	
		Calculator not available		108.4			108.5			112.4			115.7	

5. PHASE 5 ITEM TRIAL ANALYSIS

5.1 In-test trialling

Following review by the Expert Groups, 75 literacy items and 75 numeracy items were trialled within the live tests. These items were placed in small clusters (5-item clusters for literacy, and 4-item 'calculator available' clusters and a 1-item 'calculator not available' cluster for numeracy). Candidates were unaware of the location of these trial items. The trial items did not contribute to a candidate's score. The items were trialled in multiple test windows until sufficient candidates had attempted them. In this way, robust trial item estimates were obtained to enable selection of new, balanced clusters for refreshment of the tests in test window 3 and test window 4 in 2019.

5.2 Trial item analysis

Of the 75 literacy items, 70 had acceptable psychometric properties. Of 75 numeracy items, 73 had acceptable properties. Table 36 shows that the acceptable Phase 5 trial items were well-targeted by difficulty, with most items achievable by candidates in Band 2: At and above the standard and in Band 3: Clearly above the standard. A small number are achievable by candidates above Band 3 and in Band 1: Below the standard, as required by the test construct. A small number of Phase 5 trial items (4 literacy, 2 numeracy) were too easy to be of any use in refreshing the test.

Table 36: Distribution of Phase 5 trial items by Band

Achievable by candidates ...	Number of literacy items	Number of numeracy items
well above Band 3	0	0
above Band 3	2	5
in Band 3: Clearly above the standard	19	13
in Band 2: At and above the standard	29	36
in Band 1: Below the standard	16	17
below Band 1	4	2
Total	70	73

5.3 Differential item functioning

During the item development and revision phase, avoiding items that might favour one subgroup of candidates over another is attempted. Despite this, it is normal for a proportion of items to show differential item functioning (DIF).

DIF analysis was performed on all trial items. Only analysis where subgroup size exceeds 50 candidates can be reported reliably. On many occasions, no obvious content or context bias is observable. Investigating reasons for a particular item showing DIF for a particular group involves looking for an explanatory connection between actual characteristics of the item and assumed or posited characteristics of the group.

It is often not possible to withhold all items showing DIF from the live tests, so the approach is to attempt to 'balance' the tests accordingly and thereby minimise the likelihood of any test bias. Selected items with DIF are spread across the clusters. No candidate attempts all clusters so no candidate is required to attempt all items showing DIF.

Table 37 shows the number of Phase 5 items showing significant differential item functioning. There were an insufficient number (<50) of candidates to reliably report DIF for Indigenous candidates, international candidates, English not as a first language candidates and regional and remote candidates. The data from test window 1, 2020, will be added to the DIF analysis before items are selected to refresh the test for test window 3 in 2020.

For both literacy and numeracy, the DIF was reasonably 'well-balanced' for most variables except for Age where there were more items favouring candidates aged 26+ years.

Items showing DIF are investigated for unfair content and where this is found to exist the items are not selected. Usually, this is not the case and the DIF is performance related; that is, the favoured subgroup is simply better at the skills being assessed for a variety of reasons. To minimise differential test functioning, DIF ‘cancelling’ methodology is applied at the cluster formation stage. That is, items showing DIF are paired with items showing DIF in the opposite direction. In this way, clusters are well-balanced and the tests from which the clusters are created are fair.

Table 37: Differential item functioning

Variable	Favours	Number of literacy items	Number of numeracy items
Age	17–25 years	1	2
	26+ years	4	4
Course Category	Early childhood & primary	2	2
	Secondary	1	3
Gender	Female	5	7
	Male	3	4
Program Type	Postgraduate	3	4
	Undergraduate	1	4

The detailed DIF analysis may be found in Appendix 6.

6. PHASE 6 TEST DEVELOPMENT

During 2019, 114 Phase 5 literacy items (84 reading and 30 technical skills of writing) and 110 Phase 5 numeracy items mapped against the Assessment Framework were developed. The items were reviewed by the Experts Group in February 2020 and are to be revised based upon reviewers' feedback. A small proportion will be retired. A selection of at least 60 literacy items and at least 60 numeracy items will be in-test trialled in test windows 3 and 4 of 2020 and test window 1 of 2021. A selection of these will be used to refresh the test in 2020.

7. CONCLUSION

The test was successfully administered in four test windows in all Australian states and territories in 24 metropolitan and regional testing centres and by remote proctoring to 21 544 candidates. Another set of new items was successfully trialled enabling the test to be refreshed.

Item difficulty and targeting of the new set of trial items against the framework was such that equivalent test clusters can be created. Differential item functioning was found to be manageable, ensuring that unbiased clusters can be created in order to refresh the test in mid-2020.

Of the candidates who first registered in 2019, by the end of the year, 91.7% had achieved the literacy standard and 90.7% had achieved the numeracy standard. Over the four years of testing, 94.5% of candidates have achieved the literacy standard and 93.9% of candidates have achieved the numeracy standard. Of the 78 218 candidates presenting for the test in the four-year period, 2016–2019, 91.6% have achieved both standards, thereby meeting the requirements. Candidates were making effective use of the opportunity to improve their skills and resit the tests with 97.8% of the 2016 cohort achieving the literacy standard and 96.9% achieving the numeracy standard by the end of 2019.

8. REFERENCES

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9. APPENDICES

Appendix 1: Proportion of candidates by test centre and by attempt

Table 38 shows the number and proportion of candidates participating at each test centre and by remote proctoring. In 2019, nearly half (48%) of first-attempt candidates (compared to 51% in 2018) sat the test at just three test centres: Melbourne CBD, Sydney CBD and Brisbane CBD. It can be seen that the proportion of candidates choosing remote proctoring increased steadily by test attempt from 22% up to 38%, excluding the small number of fifth-attempt candidates. The proportions in Sydney and Melbourne test centres stayed reasonably constant by test attempt, suggesting that resitting candidates who chose remote proctoring for their resits were mainly based in the regions.

Table 38: Number and proportion of candidates who participated by test centre

Test Centre	First Attempt				Second Attempt				Third Attempt				Fourth Attempt				Fifth Attempt			
	Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Adelaide CBD	2398	11.6	2371	11.5	230	11.3	228	11.1	38	5.1	48	6.2	4	2.0	1	0.4	0	-	1	2.4
Armidale (NSW)	56	0.3	57	0.3	1	0.0	3	0.1	0	-	0	-	0	-	0	-	0	-	1	2.4
Ballarat	339	1.6	337	1.6	30	1.5	23	1.1	9	1.2	10	1.3	2	1.0	4	1.7	0	-	0	-
Bathurst	25	0.1	30	0.1	7	0.3	1	0.0	0	-	1	0.1	0	-	0	-	0	-	0	-
Brisbane CBD	2663	12.9	2663	12.9	142	6.9	138	6.7	33	4.4	37	4.8	8	4.0	6	2.6	0	-	0	-
Cairns	33	0.2	33	0.2	1	0.0	1	0.0	0	-	0	-	0	-	0	-	0	-	0	-
Canberra CBD	333	1.6	335	1.6	13	0.6	22	1.1	4	0.5	5	0.6	2	1.0	0	-	0	-	0	-
Darwin	52	0.3	60	0.3	3	0.1	4	0.2	3	0.4	2	0.3	0	-	1	0.4	0	-	0	-
Geelong	67	0.3	67	0.3	6	0.3	1	0.0	1	0.1	1	0.1	1	0.5	0	-	0	-	0	-
Gold Coast	131	0.6	140	0.7	20	1.0	14	0.7	4	0.5	3	0.4	2	1.0	2	0.9	0	-	0	-
Granville (NSW)	506	2.4	504	2.4	50	2.4	50	2.4	23	3.1	28	3.6	2	1.0	3	1.3	0	-	0	-
Hobart	129	0.6	134	0.6	5	0.2	9	0.4	1	0.1	2	0.3	0	-	0	-	0	-	0	-
Melbourne CBD	4319	20.9	4318	20.9	595	29.1	553	26.9	253	33.8	204	26.3	68	33.8	86	37.2	13	36.1	14	33.3
Mildura	26	0.1	29	0.1	1	0.0	0		0	-	0	-	0	-	0	-	0	-	0	-
Newcastle	432	2.1	423	2.0	28	1.4	25	1.2	10	1.3	17	2.2	3	1.5	2	0.9	1	2.8	1	2.4
Perth CBD	1098	5.3	1098	5.3	51	2.5	53	2.6	8	1.1	20	2.6	3	1.5	3	1.3	0	-	0	-
Reasonable Adjustments	12	0.1	13	0.1	7	0.3	4	0.2	4	0.5	6	0.8	3	1.5	6	2.6	0	-	1	2.4
Remote Proctoring	4471	21.6	4485	21.7	562	27.5	621	30.2	246	32.9	272	35.1	76	37.8	83	35.9	18	50.0	22	52.4

Rockhampton	32	0.2	32	0.2	0		1	0.0	0	-	0	-	0	-	0	-	0	-	0	-
Sunshine Coast/Maroochydore	152	0.7	155	0.7	12	0.6	16	0.8	5	0.7	1	0.1	0	-	0	-	0	-	0	-
Sydney CBD	2990	14.5	3006	14.5	262	12.8	274	13.3	103	13.8	114	14.7	25	12.4	31	13.4	2	5.6	2	4.8
Townsville	96	0.5	100	0.5	5	0.2	4	0.2	1	0.1	0	-	1	0.5	2	0.9	0	-	0	-
Wagga Wagga	19	0.1	19	0.1	1	0.0	1	0.0	0	-	0	-	0	-	0	-	0	-	0	-
Warrnambool	34	0.2	33	0.2	1	0.0	1	0.0	2	0.3	2	0.3	0	-	1	0.4	0	-	0	-
Wodonga	76	0.4	76	0.4	4	0.2	4	0.2	0	-	2	0.3	0	-	0	-	2	5.6	0	-
Wollongong	181	0.9	184	0.9	7	0.3	7	0.3	0	-	1	0.1	1	0.5	0	-	0	-	0	-
Total	20670	100	20702	100	2044	100	2058	100	748	100	776	100	201	100	231	100	36	100	42	100

Appendix 2: Proportion of candidates by test centre and by test window

Table 39 and Table 40 show the number and proportion of candidates participating in each test centre in test windows 1–4 for literacy and for numeracy respectively. It can be seen that some test centres in some locations were not used for some test windows.

Outside the capital cities, the regional test centres with totals of more than 200 candidates were Granville (NSW), Newcastle and Ballarat for each of literacy and numeracy. The centres with fewer than 50 candidates in total were Warrnambool, Cairns, Bathurst, Rockhampton, Mildura and Wagga Wagga.

More candidates sat the test by remote proctoring than at any particular CBD test centre. For literacy, 5374 candidates sat by remote proctoring compared to 5248 at the Melbourne CBD centre. The numbers were similar for numeracy.

Table 39: Number of candidates in test centres by test windows – literacy

Test Centre	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Adelaide CBD	757	13.8	846	13.7	597	10.2	470	7.6
Armidale (NSW)	21	0.4	36	0.6	0	0.0	0	0.0
Ballarat	151	2.8	142	2.3	87	1.5	0	0.0
Bathurst	0	0.0	32	0.5	0	0.0	0	0.0
Brisbane CBD	614	11.2	643	10.4	670	11.5	919	14.9
Cairns	0	0.0	34	0.5	0	0.0	0	0.0
Canberra CBD	83	1.5	82	1.3	81	1.4	106	1.7
Darwin	25	0.5	15	0.2	18	0.3	0	0.0
Geelong	0	0.0	75	1.2	0	0.0	0	0.0
Gold Coast	56	1.0	62	1.0	39	0.7	0	0.0
Granville (NSW)	211	3.8	179	2.9	191	3.3	0	0.0
Hobart	59	1.1	42	0.7	34	0.6	0	0.0
Melbourne CBD	1015	18.5	1562	25.2	1238	21.2	1433	23.2
Mildura	0	0.0	27	0.4	0	0.0	0	0.0
Newcastle	155	2.8	158	2.5	161	2.8	0	0.0
Perth CBD	200	3.6	222	3.6	396	6.8	342	5.5
Reasonable Adjustments	3	0.1	8	0.1	3	0.1	12	0.2
Remote Proctoring	1176	21.4	1130	18.2	1336	22.9	1732	28.0
Rockhampton	0	0.0	32	0.5	0	0.0	0	0.0
Sunshine Coast/Maroochydore	69	1.3	61	1.0	39	0.7	0	0.0
Sydney CBD	701	12.8	761	12.3	751	12.9	1169	18.9
Townsville	38	0.7	0	0.0	65	1.1	0	0.0
Wagga Wagga	0	0.0	20	0.3	0	0.0	0	0.0
Warrnambool	37	0.7	0	0.0	0	0.0	0	0.0
Wodonga	28	0.5	28	0.5	26	0.4	0	0.0
Wollongong	87	1.6	0	0.0	102	1.7	0	0.0
Total	5486	100	6197	100	5834	100	6183	100

Table 40: Number of candidates in test centres by test windows – numeracy

Test Centre	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Adelaide CBD	738	13.5	837	13.5	610	10.3	464	7.5
Armidale (NSW)	21	0.4	40	0.6	0	0.0	0	0.0
Ballarat	151	2.8	138	2.2	85	1.4	0	0.0
Bathurst	0	0.0	32	0.5	0	0.0	0	0.0
Brisbane CBD	613	11.2	644	10.4	669	11.3	918	14.8
Cairns	0	0.0	34	0.5	0	0.0	0	0.0
Canberra CBD	87	1.6	88	1.4	81	1.4	106	1.7
Darwin	27	0.5	22	0.4	18	0.3	0	0.0
Geelong	0	0.0	69	1.1	0	0.0	0	0.0
Gold Coast	59	1.1	63	1.0	37	0.6	0	0.0
Granville (NSW)	214	3.9	184	3.0	187	3.2	0	0.0
Hobart	61	1.1	47	0.8	37	0.6	0	0.0
Melbourne CBD	996	18.2	1548	24.9	1216	20.6	1415	22.8
Mildura	0	0.0	29	0.5	0	0.0	0	0.0
Newcastle	152	2.8	156	2.5	160	2.7	0	0.0
Perth CBD	204	3.7	225	3.6	405	6.9	340	5.5
Reasonable Adjustments	1	0.0	9	0.1	2	0.0	18	0.3
Remote Proctoring	1182	21.6	1127	18.1	1396	23.6	1778	28.6
Rockhampton	0	0.0	33	0.5	0	0.0	0	0.0
Sunshine Coast/Maroochydore	72	1.3	61	1.0	39	0.7	0	0.0
Sydney CBD	709	12.9	776	12.5	766	13.0	1176	18.9
Townsville	38	0.7	0	0.0	68	1.2	0	0.0
Wagga Wagga	0	0.0	20	0.3	0	0.0	0	0.0
Warrnambool	37	0.7	0	0.0	0	0.0	0	0.0
Wodonga	28	0.5	29	0.5	25	0.4	0	0.0
Wollongong	90	1.6	0	0.0	102	1.7	0	0.0
Total	5480	100	6211	100	5903	100	6215	100

Appendix 3: Score Frequency Distribution

Table 41: Literacy score frequency distribution of first-attempt candidates

Scale Score	Frequency	Percentile
81	1	0.0
84	2	0.0
85	2	0.0
86	1	0.0
88	2	0.0
89	7	0.1
90	4	0.1
91	7	0.1
92	12	0.2
93	16	0.3
94	34	0.4
95	38	0.6
96	39	0.8
97	63	1.1
98	79	1.5
99	104	2.0
100	123	2.6
101	178	3.4
102	234	4.6
103	226	5.7
104	304	7.1
105	407	9.1
106	453	11.3
107	456	13.5
108	568	16.3
109	699	19.6
110	654	22.8
111	804	26.7
112	955	31.3
113	839	35.4
114	958	40.0
115	945	44.6
116	921	49.0
117	1059	54.2
118	951	58.8
119	945	63.3
120	985	68.1
121	776	71.8
122	849	76.0
123	720	79.4
124	522	82.0
125	621	85.0
126	441	87.1
127	490	89.5
128	333	91.1
129	341	92.7
130	287	94.1
131	291	95.5
132	194	96.5
133	79	96.9
134	163	97.6
135	137	98.3
136	37	98.5
137	19	98.6
138	97	99.0
139	73	99.4
140	15	99.5
143	32	99.6
144	43	99.8
145	9	99.9
154	2	99.9

Standard in 2017 TW3–4, 2018 and 2019

155	12	99.9
156	11	100.0
157	1	100.0

Table 42: Numeracy score frequency distribution of first-attempt candidates

Scale Score	Frequency	Percentile
77	1	0.0
78	1	0.0
80	1	0.0
82	1	0.0
84	3	0.0
85	3	0.0
86	3	0.1
87	5	0.1
88	3	0.1
89	8	0.1
90	8	0.2
91	15	0.3
92	20	0.3
93	20	0.4
94	25	0.6
95	42	0.8
96	46	1.0
97	57	1.3
98	61	1.6
99	66	1.9
100	84	2.3
101	116	2.8
102	139	3.5
103	169	4.3
104	196	5.3
105	174	6.1
106	265	7.4
107	284	8.8
108	382	10.6
109	342	12.3
110	393	14.2
111	400	16.1
112	561	18.8
113	494	21.2
114	635	24.3
115	591	27.1
116	588	30.0
117	684	33.3
118	693	36.6
119	528	39.2
120	662	42.4
121	729	45.9
122	743	49.5
123	890	53.8
124	738	57.3
125	599	60.2
126	766	63.9
127	612	66.9
128	725	70.4
129	567	73.1
130	723	76.6
131	494	79.0
132	438	81.1
133	455	83.3
134	271	84.6

Standard in 2017 TW3–4, 2018 and 2019

135	382	86.5
136	478	88.8
137	346	90.5
138	30	90.6
139	384	92.5
140	315	94.0
141	207	95.0
142	41	95.2
143	64	95.5
144	147	96.2
145	237	97.3
146	101	97.8
147	39	98.0
148	81	98.4
150	7	98.4
151	61	98.7
152	14	98.8
156	99	99.3
157	80	99.7
158	18	99.7
159	30	99.9
160	5	99.9
164	12	100.0
165	5	100.0

Table 43 shows the percentage of candidates who sat the test in 2019 in each of the three bands for both literacy and numeracy. For literacy, nearly 60% of the candidates who registered in 2019 and sat the literacy component in 2019 were located in Band 2: At or above the standard, while approximately 32% were located in Band 3: Well above the standard or above Band 3.

For numeracy, 44% were located in Band 2: At or above the standard, while 46% were located in Band 3: Well above the standard or above Band 3.

Table 43: Candidates attempting the test in 2019 by Band achievement

Component	Year of Registration	No. of Unique Candidates	Below Band 1 (%)	Band 1 (%)	Band 2 (%)	Band 3 (%)	Above Band 3 (%)
Literacy	2019	20 670	0.2	8.1	59.8	29.6	2.4
	2019 plus the 2016–18 resitters	22 346	0.2	10.7	59.5	27.4	2.2
Numeracy	2019	20 702	0.7	8.7	44.4	36.8	9.6
	2019 plus the 2016–18 resitters	22 388	0.9	11.1	44.9	34.2	8.8

The distribution of candidate scale scores across the bands in 2019 was similar to that in 2018 for both literacy and numeracy.

Appendix 4: Performance by Demographic Characteristics and Test Windows

Table 44 to Table 47 show performance by demographic characteristics for each test window. In general, the overall findings in Section 3: Candidate Performance are also true for each test window.

There was little variation between subgroup numbers between test windows apart from international candidates and those for whom English was an additional language, with numbers for both groups relatively low in test window 1 and relatively high in test window 2.

Undergraduate candidates in their first year were more likely to attempt the test in test window 4, whereas the reverse was true for undergraduate candidates in their fourth year who were more likely to attempt the test in test window 1.

Postgraduate candidates in their first year were least likely to attempt the test in test window 1 and most likely to attempt it in test window 2. However, postgraduate candidates in their second year were more likely to attempt the test in test window 1 and least likely to attempt it in test windows 3 and 4.

Table 44: Performance by demographic characteristics in test window 1

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4119	115.2	9.2	82.0	4147	118.7	11.7	78.4
	Male	1364	117.2	9.0	87.8	1330	125.5	11.8	91.4
	Indeterminate/intersex	3	-	-	-	3	-	-	-
Age	17–25	3700	114.6	8.4	82.9	3711	119.4	11.5	80.8
	26–30	754	117.3	9.6	84.7	761	121.6	12.7	82.9
	31–35	367	118.4	10.7	86.1	353	122.7	13.4	83.9
	36–40	280	118.8	10.8	85.0	269	124.4	13.1	84.4
	41–45	233	118.0	10.6	80.3	221	122.2	14.0	84.6
	46+	152	119.0	11.8	84.9	165	120.9	13.2	78.8
International Students	No	5259	115.9	9.1	84.4	5307	120.3	12.1	81.5
	Yes	227	111.0	9.7	62.6	173	120.8	12.4	81.5
English as a First Language	Yes	4837	116.4	9.0	86.2	4935	120.6	12.0	82.4
	No	649	110.3	8.9	62.9	545	117.7	12.4	73.6
Indigenous	No	5290	115.7	9.2	83.6	5286	120.4	12.1	81.6
	Yes	106	113.2	8.6	76.4	106	117.5	11.8	74.5
	Not disclosed	90	116.4	9.4	81.1	88	121.7	13.0	84.1
Residential Area	Metropolitan areas	4386	115.4	9.2	82.8	4378	120.1	12.1	81.2
	Provincial areas	1052	116.7	9.2	85.7	1047	121.6	12.3	83.0
	Remote areas	36	116.4	8.7	88.9	38	119.1	9.9	84.2
	International	6	-	-	-	9	-	-	-
	Invalid or Missing	6	-	-	-	8	-	-	-
Program Type	Undergraduate	3881	114.3	8.4	81.7	3846	118.9	11.4	79.8
	Postgraduate	1600	119.2	10.2	87.9	1628	123.8	13.0	85.7
	Pathway	5	-	-	-	6	-	-	-
Program Type by Year Level	Undergraduate first year	122	113.1	8.6	78.7	115	117.6	11.6	74.8
	Undergraduate second year	697	114.5	8.4	82.4	674	120.0	11.3	83.1
	Undergraduate third year	1092	114.4	8.1	83.7	1094	119.6	11.3	81.6
	Undergraduate fourth year	1600	114.8	8.4	83.1	1575	119.1	11.4	80.7
	Undergraduate fifth yr or above	128	114.2	9.1	79.7	152	117.2	11.3	74.3

	Undergraduate graduated	242	110.0	7.6	64.0	236	113.8	10.4	62.7
	Postgraduate first year	409	121.7	9.7	93.9	405	127.8	12.8	90.9
	Postgraduate second year	838	119.6	9.8	89.6	857	123.7	12.4	88.1
	Postgraduate third year	68	119.3	9.3	89.7	78	123.0	12.8	82.1
	Postgraduate fourth year	50	114.9	9.8	76.0	53	120.8	14.0	79.2
	Postgraduate fifth yr or above	57	118.5	10.3	91.2	69	121.0	13.5	76.8
	Postgraduate graduated	178	112.8	10.7	67.4	166	116.6	11.9	68.7
	Pathway first year	5	-	-	-	5	-	-	-
	Pathway second year	0	-	-	-	0	-	-	-
	Pathway third year	0	-	-	-	0	-	-	-
	Pathway fourth year	0	-	-	-	1	-	-	-
	Pathway graduated	0	-	-	-	0	-	-	-
Course Category	Early childhood	513	112.1	9.0	70.6	482	115.2	11.4	67.4
	Primary	2268	115.2	8.9	83.1	2305	119.7	11.4	81.6
	Secondary	1936	118.1	9.3	89.4	1946	123.5	12.4	87.2
	Special education	69	113.5	7.9	81.2	68	116.8	10.9	76.5
	Other	700	113.5	8.8	77.9	679	117.5	11.8	75.4

Table 45: Performance by demographic characteristics in test window 2 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4422	115.1	9.4	81.0	4475	119.2	12.1	77.8
	Male	1772	118.3	8.8	91.8	1734	126.6	11.5	92.8
	Indeterminate/intersex	3	-	-	-	2	-	-	-
Age	17–25	4249	115.3	8.7	83.9	4263	121.0	11.9	82.5
	26–30	916	117.4	9.8	85.8	937	122.0	13.5	81.0
	31–35	413	118.1	10.4	85.0	401	123.3	13.1	83.8
	36–40	270	117.1	10.1	83.0	272	121.5	12.0	83.5
	41–45	177	117.1	12.2	82.5	163	121.0	14.0	76.1
	46+	172	118.4	12.3	80.8	175	120.5	14.0	74.3
International Students	No	5634	116.5	9.2	85.7	5639	121.0	12.3	81.4
	Yes	563	111.5	9.7	67.9	572	124.7	12.0	88.6
English as a First Language	Yes	5132	117.0	9.0	87.6	5155	121.3	12.2	82.5
	No	1065	111.3	9.5	66.9	1056	121.2	13.0	79.8
Indigenous	No	5959	116.1	9.4	84.3	5985	121.3	12.4	82.0
	Yes	111	112.8	8.4	77.5	109	117.4	11.6	76.1
	Not disclosed	127	115.5	9.6	80.3	117	123.3	11.8	88.0
Residential Area	Metropolitan areas	5132	116.1	9.5	83.8	5119	121.5	12.5	81.9
	Provincial areas	1025	115.7	8.7	85.3	1046	120.4	11.3	82.9
	Remote areas	25	114.6	9.9	84.0	29	117.3	12.7	69.0
	International	10	123.3	8.3	90.0	11	127.1	13.4	90.9
	Invalid or Missing	5	-	-	-	6	-	-	-
Program Type	Undergraduate	3736	114.3	8.7	80.8	3726	119.2	11.6	78.7
	Postgraduate	2446	118.7	9.7	89.3	2479	124.5	12.8	87.1
	Pathway	15	106.3	6.1	46.7	6	-	-	-
Program Type by Year Level	Undergraduate first year	412	115.2	8.9	81.6	419	122.5	10.8	88.5
	Undergraduate second year	692	113.9	8.8	79.5	652	119.7	11.8	79.8
	Undergraduate third year	1049	114.8	8.3	83.6	1053	119.8	11.3	81.4

	Undergraduate fourth year	1223	114.5	8.7	82.0	1241	118.7	11.7	77.0
	Undergraduate fifth yr or above	143	114.2	9.6	79.0	148	117.1	11.3	71.6
	Undergraduate graduated	217	110.2	7.6	65.0	213	112.7	10.2	58.2
	Postgraduate first year	1467	119.9	9.5	91.8	1490	127.2	11.8	92.9
	Postgraduate second year	593	118.8	9.2	90.7	596	121.5	13.0	80.9
	Postgraduate third year	55	117.3	10.0	87.3	60	118.9	12.3	71.7
	Postgraduate fourth year	62	116.1	9.6	83.9	67	120.8	12.6	86.6
	Postgraduate fifth yr or above	75	116.2	11.5	84.0	78	120.3	12.9	80.8
	Postgraduate graduated	194	112.2	9.5	70.6	188	117.7	13.8	68.1
	Pathway first year	11	106.0	6.6	45.5	5	-	-	-
	Pathway second year	1	-	-	-	1	-	-	-
	Pathway third year	1	-	-	-	0	-	-	-
	Pathway fourth year	2	-	-	-	0	-	-	-
	Pathway graduated	0	-	-	-	0	-	-	-
Course Category	Early childhood	535	110.8	9.2	65.0	535	115.0	11.4	66.2
	Primary	2275	115.4	9.1	82.9	2316	119.8	11.8	80.2
	Secondary	2446	118.5	8.9	91.7	2444	124.7	12.2	88.7
	Special education	48	113.4	7.4	83.3	47	116.1	11.5	72.3
	Other	893	114.1	9.3	77.8	869	119.8	12.0	78.4

Table 46: Performance by demographic characteristics in test window 3 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4389	114.6	8.5	82.8	4500	119.2	11.3	79.9
	Male	1443	116.7	8.9	87.2	1400	126.1	11.9	91.6
	Indeterminate/intersex	2	-	-	-	3	-	-	-
Age	17–25	4027	114.3	7.9	83.2	4016	120.3	11.3	82.2
	26–30	818	116.2	9.4	83.6	836	121.7	12.7	82.9
	31–35	373	117.8	9.6	88.5	397	124.2	13.4	86.1
	36–40	291	117.4	9.5	86.6	298	122.6	11.5	88.6
	41–45	167	118.9	9.9	91.0	172	123.4	12.6	85.5
	46+	158	117.3	11.5	80.4	184	118.8	14.4	71.7
International Students	No	5335	115.5	8.6	85.3	5508	120.7	11.9	82.3
	Yes	499	111.4	8.2	69.3	395	123.2	10.9	88.1
English as a First Language	Yes	4918	115.9	8.4	87.1	5126	121.0	11.8	83.3
	No	916	110.9	8.6	66.8	777	120.2	12.4	78.8
Indigenous	No	5620	115.2	8.6	84.1	5691	120.9	11.8	82.7
	Yes	112	113.1	8.4	74.1	118	117.6	11.3	76.3
	Not disclosed	102	115.6	9.4	82.4	94	123.8	12.6	86.2
Residential Area	Metropolitan areas	4781	115.1	8.7	83.7	4815	120.9	11.9	82.5
	Provincial areas	999	115.1	8.3	84.9	1033	120.9	11.6	83.4
	Remote areas	36	115.8	7.9	88.9	36	119.7	12.0	80.6
	International	11	121.7	8.2	90.9	12	124.6	12.7	91.7
	Invalid or Missing	7	-	-	-	7	-	-	-
Program Type	Undergraduate	4039	114.1	8.1	82.1	4085	119.8	11.3	81.5
	Postgraduate	1762	117.7	9.3	88.7	1793	123.4	12.7	85.5
	Pathway	33	107.4	8.0	51.5	25	113.9	11.7	64.0

Program Type by Year Level	Undergraduate first year	623	114.8	8.2	83.9	617	121.7	10.6	87.7
	Undergraduate second year	791	113.9	8.5	80.5	772	120.0	11.6	81.1
	Undergraduate third year	1486	114.6	7.5	85.7	1490	120.6	10.8	84.8
	Undergraduate fourth year	809	113.9	7.9	81.3	844	118.5	11.6	77.5
	Undergraduate fifth yr or above	103	114.2	8.2	77.7	114	117.2	10.6	76.3
	Undergraduate graduated	227	110.4	9.0	63.9	248	115.4	11.8	64.1
	Postgraduate first year	1007	118.7	8.9	91.7	1005	125.3	12.2	90.0
	Postgraduate second year	420	118.0	9.8	88.6	445	123.1	13.1	84.9
	Postgraduate third year	46	115.9	9.2	80.4	43	118.5	10.1	76.7
	Postgraduate fourth year	67	115.0	7.9	85.1	66	117.1	12.9	69.7
	Postgraduate fifth yr or above	60	117.1	10.2	85.0	61	121.2	13.7	80.3
	Postgraduate graduated	162	112.4	9.2	75.9	173	117.6	12.2	71.1
	Pathway first year	29	108.2	7.9	55.2	21	116.9	10.1	76.2
	Pathway second year	0	-	-	-	0	-	-	-
	Pathway third year	1	-	-	-	2	-	-	-
	Pathway fourth year	1	-	-	-	0	-	-	-
	Pathway graduated	2	-	-	-	2	-	-	-
Course Category	Early childhood	555	111.9	8.6	71.5	574	117.0	11.2	71.8
	Primary	2424	114.9	8.3	84.1	2453	120.0	11.4	81.3
	Secondary	1996	117.3	8.8	89.2	2027	123.8	12.3	88.4
	Special education	36	112.2	7.8	72.2	40	115.6	11.2	65.0
	Other	823	113.1	8.0	79.5	809	119.3	11.0	81.1

Table 47: Performance by demographic characteristics in test window 4 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4551	114.7	8.6	83.2	4652	119.6	11.3	81.8
	Male	1630	116.6	8.4	89.0	1561	126.4	11.6	92.5
	Indeterminate/intersex	2	-	-	-	2	-	-	-
Age	17–25	4077	114.3	7.9	83.9	4059	120.8	11.2	85.2
	26–30	938	116.0	8.8	85.8	970	121.5	11.9	82.7
	31–35	444	117.5	9.5	87.2	445	124.2	12.7	87.4
	36–40	319	117.6	10.0	86.5	313	123.2	13.5	83.7
	41–45	203	117.8	10.1	86.7	223	120.1	13.6	78.5
	46+	202	118.1	10.8	85.6	205	121.5	14.3	81.0
International Students	No	5649	115.6	8.5	86.4	5827	121.1	11.8	84.1
	Yes	534	110.6	8.2	66.9	388	124.1	11.4	91.0
English as a First Language	Yes	5189	116.1	8.3	88.1	5383	121.4	11.6	85.2
	No	994	110.3	8.3	67.2	832	120.3	12.5	79.8
Indigenous	No	5958	115.2	8.6	84.8	5996	121.3	11.7	84.6
	Yes	119	112.1	8.2	79.0	107	116.9	12.5	74.8
	Not disclosed	106	116.7	9.6	84.9	112	123.6	11.9	86.6
Residential Area	Metropolitan areas	5218	115.1	8.6	84.2	5249	121.3	11.8	84.3
	Provincial areas	913	115.6	8.4	87.5	909	121.3	11.8	86.0
	Remote areas	34	114.0	8.6	76.5	39	118.2	12.3	76.9
	International	17	119.8	8.0	94.1	15	124.1	8.9	93.3

	Invalid or Missing	1	-	-	-	3	-	-	-
Program Type	Undergraduate	4170	114.1	8.0	83.4	4123	120.1	11.3	83.0
	Postgraduate	1981	117.6	9.3	88.1	2056	123.8	12.2	87.9
	Pathway	32	106.4	6.9	46.9	36	111.9	8.4	58.3
Program Type by Year Level	Undergraduate first year	1060	114.4	7.7	84.8	1017	121.9	10.9	88.6
	Undergraduate second year	649	114.5	8.0	84.9	642	121.1	11.1	86.4
	Undergraduate third year	1464	114.5	7.8	85.7	1430	120.5	11.0	84.4
	Undergraduate fourth year	646	113.8	8.2	82.2	680	117.2	11.6	74.1
	Undergraduate fifth yr or above	109	114.1	8.3	81.7	107	120.4	12.4	83.2
	Undergraduate graduated	242	110.3	8.7	63.2	247	115.5	11.8	67.6
	Postgraduate first year	1193	118.9	8.8	92.0	1210	125.8	11.6	91.8
	Postgraduate second year	396	117.1	9.7	83.8	424	123.0	12.7	85.6
	Postgraduate third year	69	116.6	11.3	88.4	76	119.5	12.2	80.3
	Postgraduate fourth year	74	116.1	8.1	87.8	91	120.2	11.9	79.1
	Postgraduate fifth yr or above	52	114.3	8.5	78.8	66	118.1	11.2	74.2
	Postgraduate graduated	197	112.4	9.1	75.1	189	118.8	11.7	80.4
	Pathway first year	26	107.0	5.2	53.8	28	112.4	8.5	64.3
	Pathway second year	1	-	-	-	1	-	-	-
	Pathway third year	0	-	-	-	0	-	-	-
	Pathway fourth year	0	-	-	-	1	-	-	-
	Pathway graduated	5	-	-	-	6	-	-	-
Course Category	Early childhood	533	111.3	8.6	70.7	482	117.2	11.8	74.5
	Primary	2525	114.9	8.1	85.8	2588	120.0	11.1	83.5
	Secondary	2211	117.1	8.7	88.9	2249	124.2	12.1	88.8
	Special education	37	112.8	9.3	73.0	35	119.1	13.0	82.9
	Other	877	113.7	8.4	80.2	861	119.7	11.2	81.9

Figure 7 to Figure 11 show achievement distributions in literacy and numeracy by demographic characteristics for each test window.

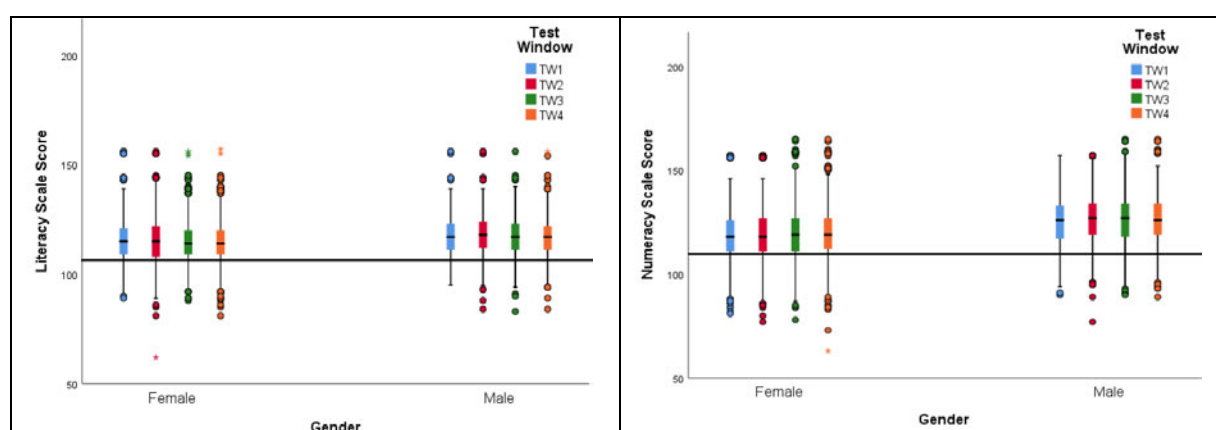


Figure 7: Score distribution by gender and test window

Figure 7 shows that, for literacy, the distributions of the scale scores of female candidates and male candidates are very similar to each other and across test windows. For numeracy, while the distributions of the scale scores of male candidates were higher up the scale than those of female candidates, it can be seen that in each test window most female candidates achieved well above the numeracy standard. It can

also be seen that there were female candidates achieving very high numeracy scores. Again, there was little apparent variation between test windows.

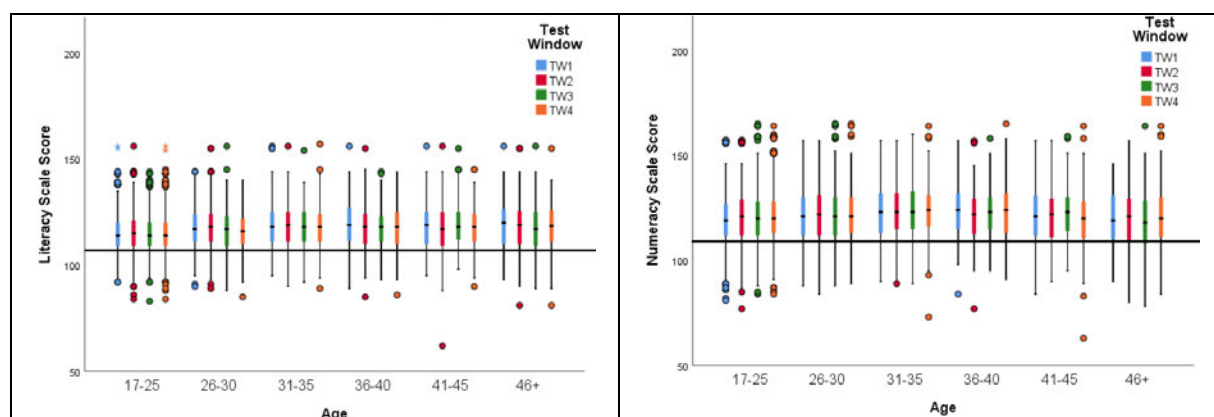


Figure 8: Score distribution by age group and test window

Figure 8 shows that, for both literacy and numeracy, the distributions of the scale scores of the age groups are very similar. The one exception for literacy is that the achievement of candidates in the 17–25 year age group is lower than the achievement of older candidates. For numeracy, the achievement of the 31–40 age groups is higher than the other age groups. There is little variation between test windows.

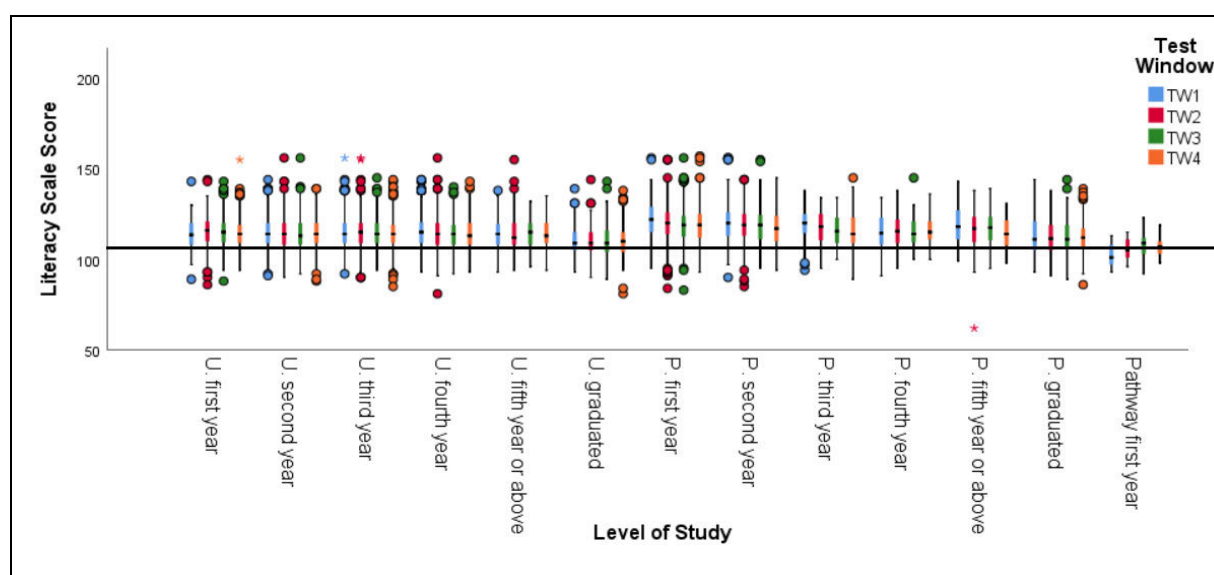


Figure 9: Score distribution by program type, year level and test window – literacy

Figure 9 shows that for literacy, there are no observable patterns in the scale score distributions of undergraduates except that there is a decline in achievement of candidates after their graduation. There is a stronger downward trend in the distributions of postgraduate candidates. This is primarily due to the higher proportions of resit candidates in the later year cohorts.

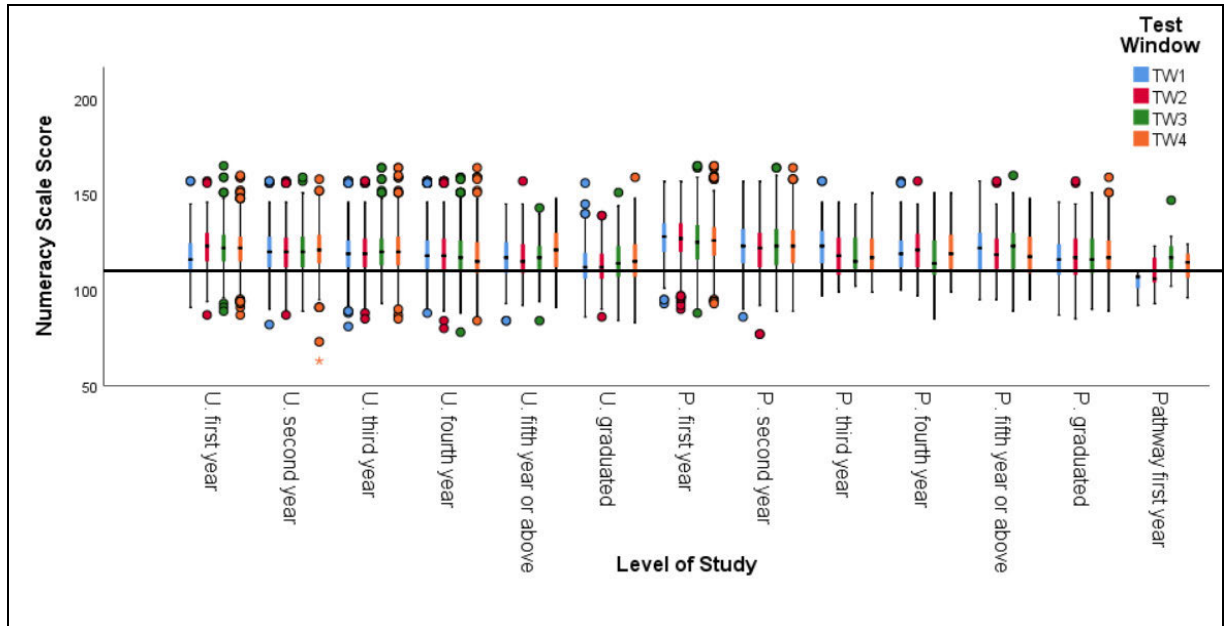


Figure 10: Score distribution by program type, year level and test window – numeracy

Figure 10 shows similar, and slightly stronger, downward trends for numeracy as those shown in Figure 9 for literacy.

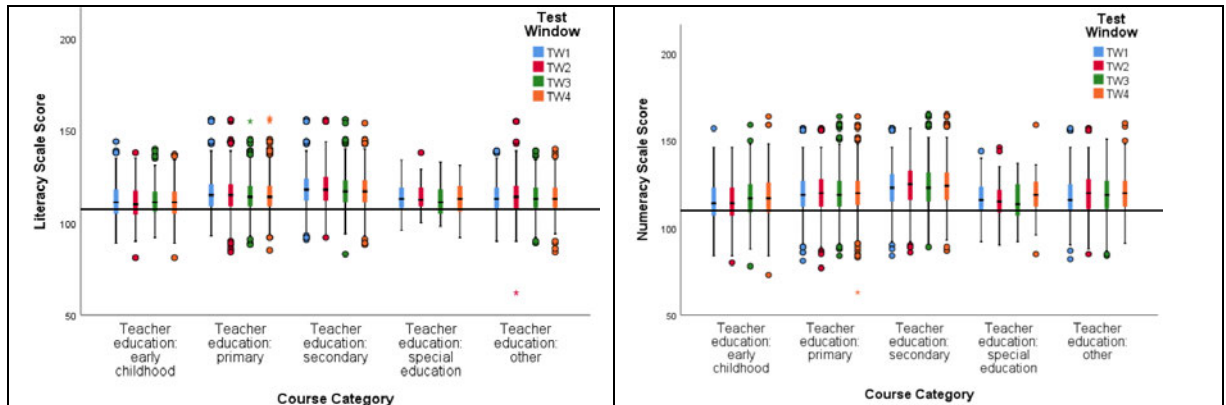


Figure 11: Score distribution by course category and test window

Figure 11 shows that there are no strong observable patterns between test windows in the scale score distributions of the course categories for both literacy and numeracy.

Appendix 5: Performance by Test Centres and Remote Proctoring by Test Window

Table 48 shows performance by location of test centres and remote proctoring in test windows 1 to 4.

Table 48: Performance by test centres and remote proctoring in test windows 1 to 4

Test Window	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
TW1	Capital Cities	3457	115.6	9.2	83.6	3436	120.2	12.0	81.1
	Regional Cities	853	116.3	9.0	85.1	862	122.2	11.9	86.3
	Remote Proctoring	1176	115.4	9.4	81.9	1182	119.6	12.4	79.2
TW2	Capital Cities	4181	116.0	9.5	83.3	4196	121.6	12.5	81.9
	Regional Cities	886	115.4	8.6	86.0	888	120.4	11.8	83.0
	Remote Proctoring	1130	116.5	9.3	85.6	1127	121.0	12.1	81.6
TW3	Capital Cities	3788	115.4	8.8	84.3	3804	121.0	12.0	82.7
	Regional Cities	710	115.1	7.9	85.4	703	121.5	11.7	84.9
	Remote Proctoring	1336	114.5	8.5	82.2	1396	120.4	11.6	81.4
TW4	Capital Cities	4451	115.2	8.5	84.9	4437	121.7	11.8	85.1
	Regional Cities	NA	NA	NA	NA	NA	NA	NA	NA
	Remote Proctoring	1732	115.1	8.7	84.4	1778	120.3	11.7	82.9

Unlike for 2018, there were no clearly observable trends or differences in mean scale scores between categories across test windows, for either component of the test.

Appendix 6: Analysis of Differential Item Functioning

Differential item functioning (DIF) analysis was performed to investigate if there are any trial items that may favour one subgroup over another. DIF analysis was not performed for Indigenous candidates, international candidates, English not as a first language candidates and regional and remote candidates due to insufficient sample size ($n < 50$). A further analysis will be undertaken using the additional data from test window 1, 2020. Items showing DIF are reported in Figure 12 to Figure 15 and Table 49 to Table 52.

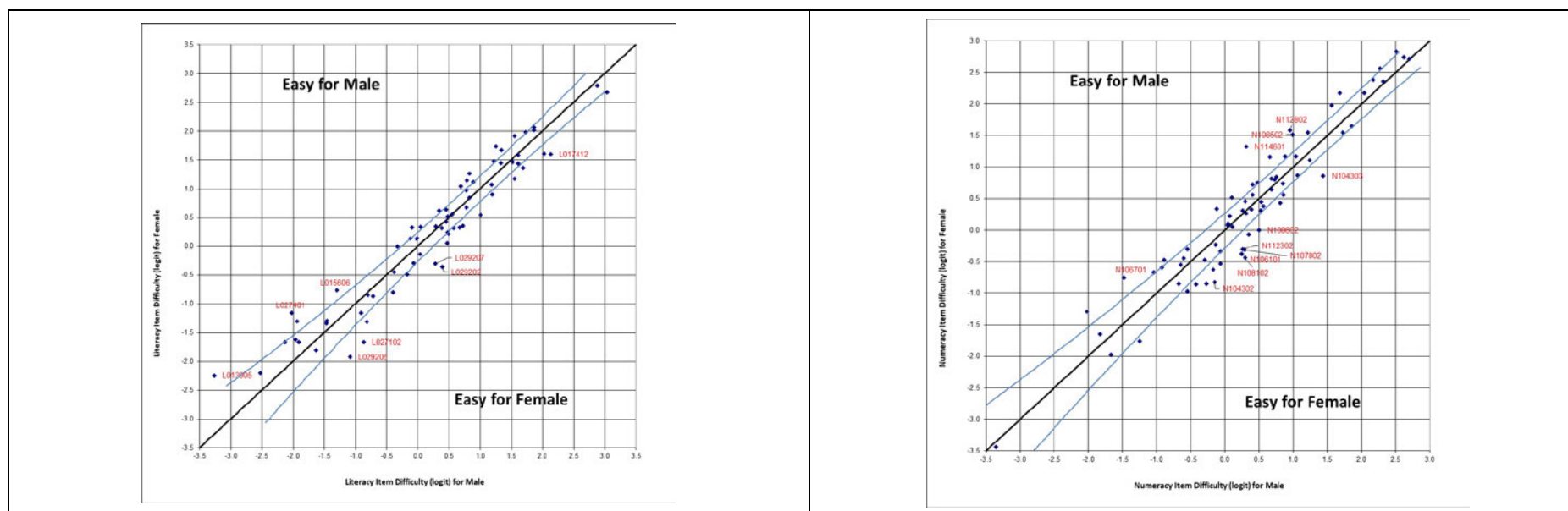


Figure 12: Gender DIF plots

As shown by Figure 12, several trial items are relatively distant from the confidence intervals and these are listed in Table 49. The table shows that, for literacy, of the 70 trial items, five items significantly favoured females and three items significantly favoured males. Of the five items favouring females, almost all (4) were technical skills of writing items, as for 2018. Of the three items favouring males, most (2) were reading items.

For numeracy, of the 73 trial items, seven items significantly favoured females and four items significantly favoured males. Of the seven items favouring females, most (4) were number and algebra items and three were measurement and geometry items (unlike 2018, when most were statistics items). Of the four items favouring males, most (3) were number items and for one of those a calculator was not available.

Table 49: List of potential gender DIF items

Item Label	Name	Difference in Item Difficulties (logit) (Male – Female)	Standardised Difference in Item Difficulties (logit) (Male – Female)	Chi-square	Probability	Gender Favoured	Content
L013005	Mouth and Tooth Injuries	–1.02	–3.3	10.8	0.00	Male	Reading
L017412	Children's television standards	0.54	4.3	18.1	0.00	Female	Reading
L027102	Teaching children with Asp Synd	0.80	3.6	12.7	0.00	Female	TSW
L029202	New school fees	0.75	4.8	23.0	0.00	Female	TSW
L027401	Discipline and small groups	–0.86	–3.8	14.8	0.00	Male	TSW
L029206	New school fees	0.84	3.3	10.7	0.00	Female	TSW
L029207	New school fees	0.59	3.8	14.2	0.00	Female	TSW
L015606	Education expenditure and perf	–0.53	–4.5	20.7	0.00	Male	Reading
N104302	Community Centre	0.68	3.7	14.0	0.00	Female	Geometry
N104303	Community Centre	0.58	4.3	18.4	0.00	Female	Measurement
N112302	After-school Club	0.56	5.9	34.3	0.00	Female	Measurement
N108102	Teaching Time	0.62	3.7	13.7	0.00	Female	Number
N108502	Supervised Driving	–0.52	–4.2	17.7	0.00	Male	Number
N107802	Overall Score	0.60	3.6	13.3	0.00	Female	Algebra
N106101	Cubic Weight	0.74	5.2	27.1	0.00	Female	Algebra
*N112802	Department Budget	–0.63	–4.5	20.5	0.00	Male	Number
N114601	Middle Years	–1.02	–7.2	51.7	0.00	Male	Statistics
N106701	Population Table	–0.73	–3.6	13.1	0.00	Male	Number
N108602	Music Streaming	0.50	5.1	25.8	0.00	Female	Number

* Calculator not available

Figure 13 shows the DIF plots for age groups (17–25 year olds compared to 26+ year olds). There is a small set of items (5 literacy and 6 numeracy) outside the confidence interval limits for both literacy and numeracy.

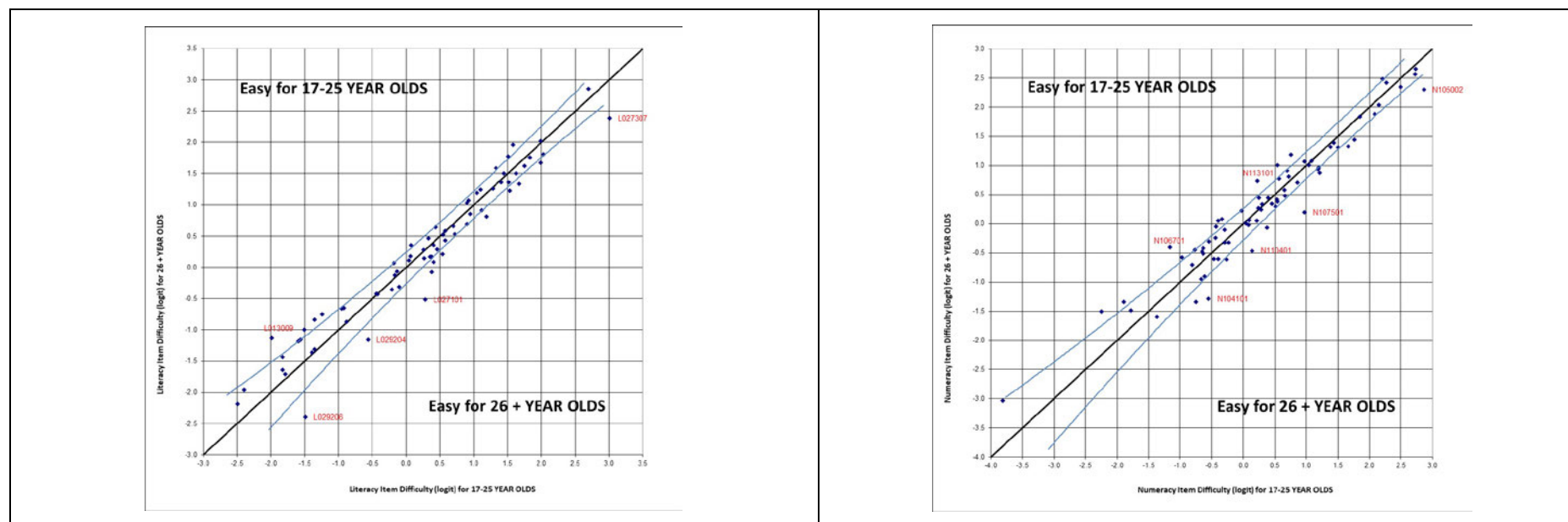


Figure 13: Age group DIF plots

Table 50 lists the trial items with potential DIF by age group. Of the five literacy items showing significant age DIF, most (4) favoured candidates aged over 25, a similar finding to previous years. This is not a surprising finding given the achievement of candidates on the literacy component tends to increase with age. Of the four literacy items favouring candidates aged over 25, most (4) were technical skills of writing items.

Of the six numeracy items showing significant age DIF, most (4) favoured candidates aged over 25. Almost all (5) were number items. A calculator was not allowed for three of the five number items. Similar findings to 2018.

Table 50: List of potential age group DIF items

Item Label	Name	Difference in Item Difficulties (logit) (17–25 Year Olds – 26+ Year Olds)	Standardised Difference in Item Difficulties (logit) (17–25 Year Olds – 26+ Year Olds)	Chi-square	Probability	Age Favoured	Content
L013009	Mouth and Tooth Injuries	-0.85	-3.7	13.5	0.00	17-25 year olds	Reading
L027101	Teaching children with Asp Synd	0.80	5.6	31.8	0.00	26 + year olds	TSW
L029204	New school fees	0.60	3.3	11.1	0.00	26 + year olds	TSW
L029206	New school fees	0.90	3.5	12.3	0.00	26 + year olds	TSW
L027307	Indigenous culture for teachers	0.63	3.9	14.9	0.00	26 + year olds	TSW
*N104101	Session Cost	0.74	3.8	14.4	0.00	26 + year olds	Number
*N110401	Water Bill	0.61	3.8	14.4	0.00	26 + year olds	Number
N105002	Out of Home Care	0.57	3.7	14.0	0.00	26 + year olds	Number
*N107501	Making Scones	0.78	5.4	29.5	0.00	26 + year olds	Number
N113101	Progress in Numeracy	-0.51	-4.3	18.7	0.00	17-25 year olds	Statistics
N106701	Population Table	-0.76	-3.8	14.3	0.00	17-25 year olds	Number

* Calculator not available

Figure 14 shows the DIF plots for program type (undergraduate compared to postgraduate).

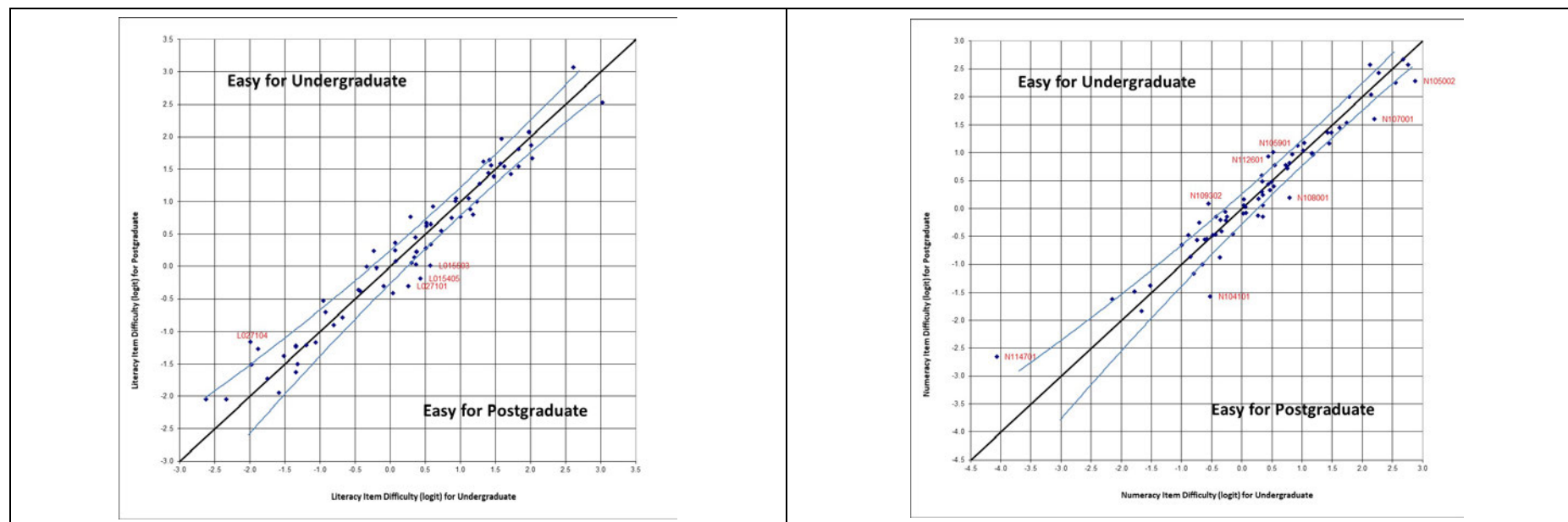


Figure 14: Program type DIF plots

Table 51 lists the trial items with potential DIF by program type. For literacy, most (3) of the four items showing significant DIF by program type favoured postgraduate candidates. Two of the four items were reading items and two were technical skills of writing items. For numeracy, there were eight items showing significant DIF by program type, half favouring undergraduate candidates and half favouring postgraduate candidates. Three items favoured undergraduate candidates and one favoured postgraduate candidates. Of the four items favouring postgraduate candidates, most (3) assessed number concepts. Of the four items favouring undergraduate candidates, most (3) assessed statistics concepts.

Table 51: List of potential program type DIF items

Item Label	Name	Difference in Item Difficulties (logit) (Undergraduate – Postgraduate)	Standardised Difference in Item Difficulties (logit) (Undergraduate – Postgraduate)	Chi-square	Probability	Program favoured	Content
L027101	Teaching children with Asperger's Syndrome	0.56	3.9	15.6	0.00	Postgraduate	TSW
L027104	Teaching children with Asperger's Syndrome	-0.83	-3.4	11.4	0.00	Undergraduate	TSW
L015405	On education	0.61	4.7	21.9	0.00	Postgraduate	Reading
L015503	Student satisfaction survey	0.56	4.3	18.4	0.00	Postgraduate	Reading
*N104101	Session Cost	1.05	5.3	28.5	0.00	Postgraduate	Number
N105002	Out of Home Care	0.60	3.9	15.4	0.00	Postgraduate	Number
N112601	Medicine Dose	-0.50	-3.5	12.0	0.00	Undergraduate	Statistics
*N105901	Forming Groups	-0.50	-3.9	15.5	0.00	Undergraduate	Number
N108001	Bicycle Ride	0.59	6.3	39.9	0.00	Postgraduate	Number
N109302	Student Retention	-0.64	-3.7	13.6	0.00	Undergraduate	Statistics
N107001	Regional Universities	0.59	6.7	45.2	0.00	Postgraduate	Statistics
N114701	Compression Socks	-1.41	-4.1	17.0	0.00	Undergraduate	Statistics

* Calculator not available

Figure 15 shows the DIF plots for course category (early childhood & primary compared to secondary).

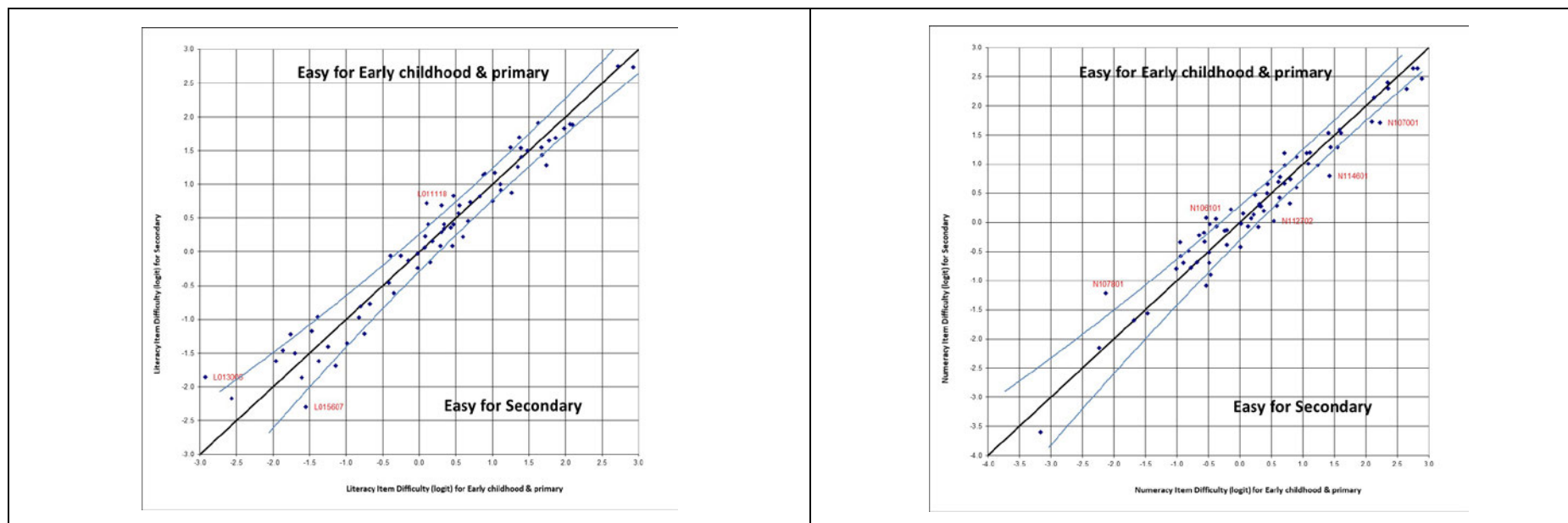


Figure 15: Course category DIF plots

For literacy, it can be seen from Figure 15 that two items significantly favoured early childhood and primary candidates, and one favoured secondary candidates. For numeracy, two items significantly favoured early childhood and primary candidates, and three favoured secondary candidates.

Table 52 lists the items with significant course category DIF. Of the three literacy items, all assessed reading proficiency, and two favoured early childhood and primary course candidates. Of the five numeracy items, the three favouring secondary course candidates were all statistics items, and the two favouring early childhood and primary course candidates were both algebra items.

Table 52: List of potential course category DIF items

Item Label	Name	Difference in Item Difficulties (logit) (Early childhood & primary – Secondary)	Standardised Difference in Item Difficulties (logit) (Early childhood & primary – Secondary)	Chi-square	Probability	Course favoured	Content
L011118	At Queenwood school	-0.62	-4.5	20.3	0.00	Early childhood & primary	Reading
L013005	Mouth and Tooth Injuries	-1.08	-3.2	10.3	0.00	Early childhood & primary	Reading
L015607	Education expenditure and performance	0.75	3.9	15.5	0.00	Secondary	Reading
N112702	PIRLS Assessment	0.52	3.6	12.9	0.00	Secondary	Statistics
N107801	Overall Score	-0.92	-3.2	10.0	0.00	Early childhood & primary	Algebra
N106101	Cubic Weight	-0.62	-4.0	15.7	0.00	Early childhood & primary	Algebra
N114601	Middle Years	0.62	4.1	17.0	0.00	Secondary	Statistics
N107001	Regional Universities	0.51	5.4	29.6	0.00	Secondary	Statistics

It is worth noting that three literacy items and six numeracy items showed significant DIF for more than one subgroup, as shown in Table 53. The content of these nine items will be further explored and they will be given a low priority for selection and release.

Table 53: List of items showing multiple DIF

Item label	Name	Favoured	Content
L013005	Mouth and Tooth Injuries	Male candidates and early childhood & primary course candidates	Reading
L027101	Teaching children with Asperger's Syndrome	26+-year-old candidates and postgraduate candidates	TSW
L029206	New school fees	Female candidates and 26+-year-old candidates	TSW
*N104101	Session Cost	26+-year-old candidates and postgraduate candidates	Number
N105002	Out of Home Care	26+-year-old candidates and postgraduate candidates	Number
N106101	Cubic Weight	Female candidates and early childhood & primary course candidates	Algebra
N106701	Population Table	Male candidates and 17–25-year-old candidates	Number
N107001	Regional Universities	Postgraduate candidates and secondary course candidates	Statistics
N114601	Middle Years	Male candidates and secondary course candidates	Statistics

It is also worth noting that some stimulus texts had multiple items showing DIF, as shown in Table 54. This occurred more often with literacy texts mainly because they were associated with larger item sets.

Table 54: List of stimulus texts with multiple items showing DIF

Component	Name	Item label	Favoured	Content
Literacy	Education expenditure and performance	L015606	Male candidates	Reading
Literacy	Education expenditure and performance	L015607	Secondary course candidates	Reading
Literacy	Mouth and Tooth Injuries	L013005	Male candidates and early childhood & primary course candidates	Reading
Literacy	Mouth and Tooth Injuries	L013009	17–25-year-old candidates	Reading
Literacy	New school fees	L029202	Female candidates	TSW
Literacy	New school fees	L029204	26 +-year-old candidates	TSW
Literacy	New school fees	L029206	Female candidates and 26+-year-old candidates	TSW
Literacy	New school fees	L029207	Female candidates	TSW
Literacy	Teaching children with Asperger's Syndrome	L027101	26+-year-old candidates and postgraduate candidates	TSW
Literacy	Teaching children with Asperger's Syndrome	L027102	Female candidates	TSW
Literacy	Teaching children with Asperger's Syndrome	L027104	Undergraduate candidates	TSW
Numeracy	Community Centre	N104302	Female candidates	Geometry
Numeracy	Community Centre	N104303	Female candidates	Measurement
Numeracy	Overall Score	N107801	Early childhood & primary candidates	Algebra
Numeracy	Overall Score	N107802	Female candidates	Algebra

It can be seen that there appear to be some consistent DIF patterns in some texts but less so in others. For example, for literacy, the ‘New school fees’ text assessing technical skills of writing appears to consistently favour female candidates, as does the ‘Community Centre’ text for numeracy, assessing geometry and measurement. These texts will be investigated further.



LITERACY AND NUMERACY TEST FOR INITIAL TEACHER EDUCATION STUDENTS

2020 Technical Report

FOR THE DEPARTMENT OF EDUCATION
AND TRAINING, APRIL 2021

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1. OVERVIEW

1.1 Administration

The Literacy and Numeracy Test for Initial Teacher Education students ('the test') was conducted across Australia for the fifth year, in four test windows, from February 2020 to November 2020. In this period, 19 923 unique candidates attempted one or both components of the test (literacy and numeracy), of which 27 had initially registered for the test in 2016, 233 in 2017, 681 in 2018 and 1649 in 2019.

COVID-19 had a significant impact on the administration of the test in 2020. Suitable test centres were closed either temporarily or permanently because of restrictions. Many regional test centres and the Melbourne test centre did not operate for most of 2020. For test window 2 the test was run solely by remote proctoring. The worldwide increase in demand for remote proctoring services meant that only limited capacity could be offered. As a consequence, window 2 was restricted to candidates who were graduating or had to fulfil practicum/course requirements by mid-year 2020.

In 2020, 17 333 candidates registered for the test and attempted one or both components of the test for the first time, a decline of 4211 from 21 544 in 2019.

In 2020, 16 511 candidates (4159 fewer than 2019) sat the literacy component for the first time and 16 313 candidates (4389 fewer than 2019) sat the numeracy component for the first time. The decline in numbers for both literacy and numeracy was greater than for the previous year.

During 2020, there were 2237 resits (by 1989 unique candidates) of the literacy component for a second, third, fourth or fifth time. This included the resits of 1280 candidates who sat for a second time and 511 candidates who sat for a third time. There were 2512 resits (by 2206 unique candidates) of the numeracy component in 2020 for a second, third, fourth or fifth time. This included the resits of 1339 candidates who sat for a second time and 617 candidates who sat for a third time.

As for 2018 and 2019, in 2020 approximately three-quarters (74%) of the candidates were female. Most (64%) were aged 25 or less (67% for 2019), and slightly more candidates (42%) were enrolled in primary courses than in secondary courses (37%), similar to 2019 (39% and 37% respectively).

Students from 47 higher education providers sat the test in 2020, the same providers as in 2019. The test was offered at 18 test centres (8 capital cities and 10 regional cities) in all states and territories, or via remote proctoring under prescribed conditions.

Close to half (49%) of first-attempt candidates in 2020 sat the test at a test centre, with 51% choosing remote proctoring. Candidates resitting the test in 2020 were more likely to do so via remote proctoring with each attempt. For example, in 2020, 57% of second-attempt candidates, 65% of third-attempt candidates and 71% of fourth-attempt candidates sat the test remotely.

Table 1 shows the number of sittings by location for each test window (TW). For both components, the proportion of sittings by remote proctoring in 2020 was 52%, up considerably from 23% in 2019, due to COVID-19.

Table 1: Number of sittings by location and by test window, including resits¹

Location of testing	TW1		TW2		TW3		TW4	
	Literacy	Numeracy	Literacy	Numeracy	Literacy	Numeracy	Literacy	Numeracy
Capital cities	3487	3575	NA	NA	2420	2415	2091	2074
Regional cities	842	27	NA	NA	NA	NA	140	146
Remote proctoring	1152	1187	559	589	4028	3975	4029	4037
Total sittings	5481	5589	559	589	6448	6390	6260	6257

At each test window, a proportion of candidates (29–48%) chose to attempt only one of the test components, as shown by Table 2. While test windows 2 and 4 had the greatest proportion of sittings in 2019 (53%), in 2020 it was test windows 3 and 4 (67%).

Table 2: Summary of sittings by test window, including resits

Test	TW1	TW2	TW3	TW4	Total
Both literacy and numeracy	4546	393	5336	5140	15415
Literacy only	935	166	1112	1120	3333
Numeracy only	1043	196	1054	1117	3410
Total sittings	6524	755	7502	7377	22158

Testing conditions were modified to accommodate 555 candidates with special needs in 2020, compared to 437 in 2019. Accessible versions of the test were also available for candidates who required supportive technology, such as a screen reader. The online accessible versions of the test were used on several occasions. In 2020, there was a substantial increase in the number of requests to accommodate anxiety disorders (100% increase for literacy, 50% for numeracy) from the previous year, while the number of requests related to dyslexia continued to decline. Accommodations are further described in Section 2 of this report.

1.2 Candidate results

Table 3 shows the number of candidates attempting each component and both components and their pass rates at the end of 2020. The table shows how the pass rates increase over time as candidates resit and achieve the standard. For example, of those candidates who initially registered for the literacy component in 2016, the pass rate increased by 2.1% from 95.2% at the end of 2016 to 97.3% at the end of 2017, but only by a further 0.3% to 97.6% at the end of 2018 and a further 0.2% at the end of 2019. At the end of 2020, the pass rate remained at 97.8%. By the end of 2020, some resitting candidates had attempted the test up to five times.

¹ Tables 1 and 2 include resit candidates in all test windows.

In the five-year period from 2016 to 2020, the number of unique candidates participating in one or more components of the test was 96 832. Of these, 95 712 sat the literacy component and 95 571 sat the numeracy component. Almost all candidates (94 451) attempted both components of the test while 1261 attempted literacy only and 1120 attempted numeracy only. At the end of 2020, of the 94 451 candidates who had attempted both components, 87 365 candidates had achieved both standards – an overall pass rate of 92.5% (slightly better than the overall pass rate of 91.6% at the end of 2019). The total number of candidates that have completed five attempts at the literacy test by the end of 2020 without achieving the standard is 43. For numeracy, 54 candidates have completed the test without achieving the standard.

By the end of 2020, nearly 98% of the 2016 cohort had met the literacy standard and 97% had met the numeracy standard.

Table 3: Summary of candidate results

Component	Year of registration	At end of year	Number of unique candidates	Standard achieved	Standard not achieved	Cancelled due to misconduct	Pass rate
Literacy	2016	2016	13083	12459	624	0	95.2
	2016	2017	13083	12732	351	0	97.3
	2016	2018	13083	12774	309	0	97.6
	2016	2019	13083	12789	294	0	97.8
	2016	2020	13083	12792	291	0	97.8
	2017	2017	23387	21517	1870	0	92.0
	2017	2018	23387	22212	1175	0	95.0
	2017	2019	23387	22385	1002	0	95.7
	2017	2020	23387	22452	935	0	96.0
	2018	2018	22061	19954	2107	0	90.4
	2018	2019	22061	20734	1327	0	94.0
	2018	2020	22061	20940	1121	0	94.9
	2019	2019	20670	18954	1716	0	91.7
	2019	2020	20670	19548	1122	0	94.6
	2020	2020	16511	15164	1347	0	91.8
	2016–20	2020	95712	90896	4816	0	95.0
Numeracy	2016	2016	13084	12324	760	0	94.2
	2016	2017	13084	12623	461	0	96.5
	2016	2018	13084	12663	421	0	96.8
	2016	2019	13084	12678	406	0	96.9
	2016	2020	13084	12689	395	0	97.0
	2017	2017	23465	21650	1815	0	92.3
	2017	2018	23465	22236	1229	0	94.8
	2017	2019	23465	22408	1057	0	95.5
	2017	2020	23465	22495	970	0	95.9
	2018	2018	22007	19810	2197	0	90.0
	2018	2019	22007	20544	1463	0	93.4
	2018	2020	22007	20804	1203	0	94.5
	2019	2019	20702	18772	1930	0	90.7
	2019	2020	20702	19489	1213	0	94.1
	2020	2020	16313	14991	1322	0	91.9
	2016–20	2020	95571	90468	5103	0	94.7
Both	2016–20	2020	94451	87365	7086	0	92.5

Table 4 shows the percentage of candidates by the number of attempts they had at each component of the test, as at the end of 2020. It can be seen that across the five years and for both components, approximately 92% of candidates attempted the test once, approximately 6% of candidates attempted the test twice, and approximately 2.4% of candidates attempted the test three or more times. For literacy, by the end of 2020, 5.6% of the candidates who registered in 2016 had resat the test, compared to 9.3% of the 2017 cohort, 10.1% of the 2018 cohort, 8.1%

of the 2019 cohort and 3.5% of the 2020 cohort. For numeracy, by the end of 2020, approximately 6.4% of the candidates who registered in 2016 had resat the test, compared to 10.2% of the 2017 cohort, 10.2% of the 2018 cohort, 8.7% of the 2019 cohort and 3.3% of the 2020 cohort.

Table 4: Summary of resit rates by year of registration and overall

Domain	Year of registration	Number of unique candidates	Unique candidates who had 1 attempt only (%)	Unique candidates who had 2 attempts only (%)	Unique candidates who had 3 attempts only (%)	Unique candidates who had 4 attempts only (%)	Unique candidates who had 5 attempts only (%)	Unique candidates who had 6 attempts only (%)	Unique candidates who had 7 attempts only (%)
Literacy	2016	13083	94.4	3.9	1.1	0.5	0.1	NA	NA
	2017	23387	90.7	5.6	2.6	0.9	0.2	NA	0.0 (1)*
	2018	22061	89.9	6.8	2.5	0.7	0.1	NA	NA
	2019	20670	91.9	6.2	1.7	0.2	0.0 (3)*	NA	NA
	2020	16511	96.5	3.2	0.3	NA	NA	NA	NA
	2016–20	95712	92.3	5.3	1.8	0.5	0.1	NA	0.0(1) *
Numeracy	2016	13084	93.6	4.0	1.4	0.7	0.3	NA	NA
	2017	23465	91.5	5.0	2.3	1.0	0.2	0.0 (1)	NA
	2018	22007	89.9	6.5	2.8	0.8	0.1	NA	NA
	2019	20702	91.2	6.3	2.1	0.3	0.0 (1)	NA	NA
	2020	16313	96.7	3.0	0.3	NA	NA	NA	NA
	2016–20	95571	92.3	5.1	1.9	0.6	0.1	0.0 (1)	NA

*The zero percentages are rounded and relate to the small numbers shown in brackets.

Table 5 shows that of the 16 511 candidates who attempted the literacy component for the first time in 2020, 89.6% achieved the standard at their first sitting, compared to 93.3% in 2016, 89.2% in 2017, 87.5% in 2018 and 88.7% in 2019. For numeracy in 2020, 89.7% of the 16 313 candidates achieved the standard at their first sitting, compared to 92.5% in 2016, 90.0% in 2017, 87.4% in 2018 and 87.7% in 2019.

Under the standard resit allowance, candidates who do not achieve the standard on their first attempt are permitted up to two additional sittings. In a small number of cases, more than two resits may be granted in exceptional circumstances. The numbers of resitting candidates in 2020 for both literacy and numeracy decreased from 2019 numbers, while pass rates increased. For literacy, in 2018 there were 2836 resits (pass rate 49%), in 2019 there were 3029 resits (pass rate 52%) and in 2020 there were 2237 resits (pass rate 55%). For numeracy, in 2018 there were 2853 resits (pass rate 42%), in 2019 there were 3107 resits (pass rate 49%) and in 2020 there were 2512 resits (pass rate 61%).

Table 5: Number of sittings and pass rates by attempt and by test window in 2020

		TW1	Pass rate	TW2	Pass rate	TW3	Pass rate	TW4	Pass rate	Total	Pass rate
Literacy	First sitting	4855	89.0	378	89.2	5745	89.3	5533	90.4	16511	89.6
	Second sitting	450	55.1	79	54.4	469	61.4	489	56.0	1487	57.4
	Third sitting	130	50.0	77	49.4	165	58.2	174	52.9	546	53.3
	Fourth sitting	43	37.2	21	28.6	59	57.6	48	50.0	171	46.8
	Fifth sitting	3	33.3	4	75.0	10	70.0	16	56.3	33	60.6
	Total sittings	5481		559		6448		6260		18748	
Numeracy	First sitting	4778	89.5	382	88.5	5659	89.8	5494	89.9	16313	89.7
	Second sitting	525	50.1	92	52.2	464	58.8	497	59.2	1578	55.6
	Third sitting	221	53.8	71	50.7	184	61.4	197	59.9	673	57.4
	Fourth sitting	48	56.3	39	66.7	70	65.7	55	60.0	212	62.3
	Fifth sitting	17	70.6	5	80.0	13	76.9	14	57.1	49	69.4
	Totals sittings	5589		589		6390		6257		18825	

Candidates' results for 2020 are described in more detail in Section 3 of this report.

1.3 Test design and in-test trialling for replenishment of item pool

In the first half of 2020, in test windows 1 and 2, there were ten equivalent test forms for literacy and ten equivalent test forms for numeracy. In the second half of 2020, in test windows 3 and 4, a proportion of the test forms were refreshed using items that were trialled in 2019. In these test windows, there were 15 equivalent test forms for literacy and 15 equivalent test forms for numeracy.

For literacy, each test form comprised five 12-item clusters (C1 to C5) totalling 60 items. For numeracy, the test was divided into two sections as follows: section 1 ('calculator available' – CA) comprising four 12-item clusters (48 items), and section 2 ('calculator not available' – CN) comprising two 6-item clusters (12 items), totalling 60 items.

In order to augment and replenish the pool of items available for the test in future administrations, items were trial-tested within the live instruments. These items were administered in small clusters (one to five items) and did not contribute to the candidates' scores. One hundred and nine (109) literacy items and 86 numeracy items were administered in the in-test trial clusters. Approximately 600 candidates were administered each of these trial items in 2020.

Examples of one literacy test and one numeracy test with in-test trial clusters are shown below.

Literacy	C1	C2	C3	C4	C5	Trial C
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	Section 1					Section 2		
Numeracy	CA1	CA2	CA3	CA4	Trial CA	CN1	CN2	Trial CN

In the second half of 2020 and the first half of 2021, 109 Phase 6 literacy items and 86 Phase 6 numeracy items were in-test trialled. Of these, 6 literacy items and 4 numeracy item were judged to have unsatisfactory psychometric properties and were deleted from the pool. The remaining items were well-targeted for difficulty across the three reporting bands as required by the test construct and assessment framework, thereby ensuring adequate test replenishment.

The Phase 6 trial items revealed some differential item functioning (DIF); however, for both literacy and numeracy, the DIF was 'well-balanced' for Course Category and Program Type variables but less so for the Age and Gender variables. For example, for the Age variable, only 3 literacy trial items favoured candidates aged 17–25 years, while 6 literacy trial items favoured candidates aged 26+ years. For numeracy, 4 items favoured candidates aged 17–25 years, while one item favoured candidates aged 26+ years. For the Gender variable, 5 literacy trial items favoured male candidates, only 2 literacy trial items favoured female candidates. For numeracy the DIF was balanced with 4 trial items favouring males and 4 favouring females. For more detail see Section 5.

1.4 Comparison of 2016, 2017, 2018, 2019 and 2020 results

Table 6 shows that the mean scale scores of first-attempt candidates changed little across the five years. Following a steady decline in pass rates for both domains, the pass rate for both increased slightly in 2020. For literacy, from 2016 to 2019, the pass rates of first-attempt candidates declined from 93.3% in 2016 to 89.2% in 2017, appeared to stabilise in 2018 and 2019 to 87.5% and 88.7% respectively and increased to 89.6% in 2020. For numeracy, from 2016 to 2019, the pass rates of first-attempt candidates also declined, from 92.4% in 2016 to 90.0% in 2017, appeared to stabilise in 2018 and 2019 to 87.4% and 87.7% respectively, increasing to 89.7% in 2020. The decline in the pass rates of first-attempt candidates from 2016 to 2018 reflects the introduction of the revised standards mid-2017.

The number of second-, third-, and fourth-attempt candidates decreased for both components of the tests. For the fifth-attempt candidates there was a decline for literacy and increase for numeracy (small numbers for both). The mean scale scores of several resit cohorts overall and across several strands for each component increased from 2019 to 2020 and is reported in Table 31, Section 3.

Table 6: Comparison of performance by attempt number, overall and by subscale

Component	Attempt number	Whole test and subscale	2016			2017			2018			2019			2020		
			Number of sittings	Mean	Pass rate	Number of sittings[1] ²	Mean	Pass rate	Number of sittings[2] ³	Mean	Pass rate	Number of sittings	Mean	Pass rate	Number of sittings	Mean	Pass rate
Literacy	1st	Overall	13082	117.5	93.33	23387	117.0	89.2	22061	116.8	87.5	20670	116.8	88.7	16511	116.9	89.6
		Reading		117.4			117.1			117.1			117.1			117.0	
		Technical Skills of Writing		117.5			116.9			116.2			116.3			116.9	
	2nd	Overall	340	107.5	67.94	1488	106.5	53.5	2022	106.6	51.3	2044	106.9	55.2	1487	107.2	57.4
		Reading		107.2			106.6			106.6			107.2			107.0	
		Technical Skills of Writing		107.9			106.1			106.6			106.5			107.9	
	3rd	Overall	25	107.7	76.00	297	105.4	40.1	647	106.0	46.1	748	106.3	47.2	546	106.7	53.3
		Reading		107.3			105.5			105.6			106.3			106.0	
		Technical Skills of Writing		108.5			105.1			106.6			106.5			108.0	
	4th	Overall	0	NA	NA	34	106.1	41.2	158	104.8	32.9	201	106.4	45.3	171	106.7	46.8
		Reading		NA	NA		105.4			104.2			105.8			105.9	
		Technical Skills of Writing		NA	NA		107.4			105.8			107.8			108.3	
	5th	Overall	0	NA	NA	0	NA	NA	13	105.0	23.1	36	106.1	44.4	33	107.5	60.6
		Reading		NA	NA		NA	NA		104.7			106.0			107.3	
		Technical Skills of Writing		NA	NA		NA	NA		105.2			106.6			107.8	
	6th	Overall	0	NA	NA	0	NA	NA	1	NA	NA	0	NA	NA	0	NA	NA

² Sittings beyond the first attempt include candidates who first registered in previous years³ Sittings beyond the first attempt include candidates who first registered in previous years

		Reading		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
		Technical Skills of Writing		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
	7th	Overall	0	NA	NA	0	NA	NA	0	NA	NA	1	NA	NA	0	NA	NA
		Reading		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
		Technical Skills of Writing		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
	1st	Overall	13084	122.4	92.4	23464	123.0	90.0	22007	122.8	87.4	20702	122.7	87.7	16313	124.3	89.7
		Number & Algebra		121.8			122.3			122.5			123.2			125.0	
		Measurement & Geometry		121.5			122.8			122.6			121.6			122.7	
		Statistics & Probability		122.7			123.0			122.6			122.2			123.6	
		Calculator available		122.5			123.2			123.1			122.9			124.4	
		Calculator not available		119.3			119.7			120.6			121.7			123.4	
Numeracy	2nd	Overall	405	107.5	55.6	1366	108.1	49.9	1995	108.6	45.3	2058	109.1	49.3	1578	110.4	55.6
		Number & Algebra		106.1			106.4			107.1			108.1			109.7	
		Measurement & Geometry		108.0			109.1			109.1			109.3			110.3	
		Statistics & Probability		109.6			109.9			110.7			110.8			111.8	
		Calculator available		108.6			109.4			109.8			109.7			111.0	
		Calculator not available		103.7			103.4			103.9			106.8			108.3	
	3rd	Overall	40	105.4	37.5	340	107.3	41.5	658	107.7	36.8	776	109.0	49.5	673	110.9	57.4
		Number & Algebra		103.9			105.7			106.2			108.3			110.8	
		Measurement & Geometry		106.8			108.2			108.4			109.2			110.3	
		Statistics & Probability		107.0			108.9			109.7			110.3			111.8	

		Calculator available		106.2			108.3			108.5			109.6			111.3	
		Calculator not available		102.3			103.4			104.6			106.9			109.4	
4th	Overall		2[3] ⁴	NA	NA	48	106.0	35.4	175	107.3	31.4	231	110.3	50.2	212	112.6	62.3
	Number & Algebra			NA	NA		104.1			106.0			109.9			113.1	
	Measurement & Geometry			NA	NA		107.2			107.9			110.7			111.3	
	Statistics & Probability			NA	NA		108.2			108.8			111.0			112.7	
	Calculator available			NA	NA		106.8			107.9			110.5			112.4	
	Calculator not available			NA	NA		103.5			104.8			109.6			113.2	
5th	Overall		0	NA	NA	0	NA	NA	28	109.3	35.7	41	110.6	46.3	49	114.9	69.4
	Number & Algebra			NA	NA		NA	NA		107.5			111.2			114.6	
	Measurement & Geometry			NA	NA		NA	NA		109.9			110.3			113.8	
	Statistics & Probability			NA	NA		NA	NA		112.0			109.7			115.5	
	Calculator available			NA	NA		NA	NA		109.9			110.3			114.7	
	Calculator not available			NA	NA		NA	NA		106.3			111.4			115.9	
6th	Overall		0	NA	NA	0	NA	NA	1	NA	NA	0	NA	NA	0	NA	NA
	Number & Algebra			NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
	Measurement & Geometry			NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
	Statistics & Probability			NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
	Calculator available and not available			NA	NA		NA	NA		NA	NA		NA	NA		NA	NA

⁴ Not reported due to small (n=2) group size

2. TEST ADMINISTRATION WINDOWS 1–4 IN 2020

This section covers the demographic characteristics of candidates who sat the test in 2020. Details on test centres, remote proctoring and other administrative matters can be found in each of the four 2020 test window administration reports submitted separately throughout 2020.

2.1 Demographic Characteristics of Candidates

Just over 17 000 candidates from 47 institutions sat the test in 2020, the same institutions as in 2019.

Alphacrucis College	Queensland University of Technology
Australian Catholic University	RMIT University
Australian College of Physical Education	Southern Cross University
Avondale College	Swinburne University of Technology
Central Queensland University	Tabor Adelaide
Charles Darwin University	The University of Adelaide
Charles Sturt University	The University of Melbourne
Christian Heritage College	The University of New England
Curtin University	The University of New South Wales
Deakin University	The University of Newcastle
Eastern College Australia	The University of Notre Dame Australia
Edith Cowan University	The University of Queensland
Excelsia College	The University of Sydney
Federation University Australia	The University of Western Australia
Flinders University	University of Canberra
Griffith University	University of South Australia
Holmesglen TAFE	University of Southern Queensland
James Cook University	University of Tasmania
La Trobe University	University of Technology Sydney
Macquarie University	University of the Sunshine Coast
Melbourne Polytechnic	University of Wollongong
Monash University	Victoria University
Montessori World Educational Institute	Western Sydney University
Murdoch University	

Table 7 shows the demographic characteristics of all candidates who sat the test in 2020. This includes candidates who first registered for the test in 2020 plus those who registered in the period 2016–2019 and resat the test in 2020. It shows that the majority of candidates (74%)⁵ were female, resided in metropolitan areas (80%) and most (64%) were in the age group 17–25. The majority of candidates (63%) were enrolled in an undergraduate course. The majority of undergraduate candidates were those in their third or fourth years. Over half of the postgraduate candidates who sat the test in 2020 were those in their first year. In regard to course category, candidates were mainly enrolled in primary teacher education courses (42%), followed by secondary (38%), other teacher education courses (12%), early childhood (8%) and special education (less than 1%).

The proportion of international candidates attempting the test in 2020 was 6–7%, similar to that in 2019. The proportion of candidates who identify as Indigenous and the proportion from provincial areas were very similar to previous years at 1.7% and 1.8% respectively.

Table 7: Demographic characteristics of unique candidates who sat the test in 2020 (including 2016–19 resitters)

Characteristic	Category	Literacy		Numeracy	
		N	%	N	%
Gender	Female	13242	73.9	13352	74.2
	Male	4675	26.1	4625	25.7
	Indeterminate/intersex	5	0.0	6	0.0
Age	17–25	11495	64.1	11496	63.9
	26–30	2839	15.8	2888	16.1
	31–35	1351	7.5	1362	7.6
	36–40	999	5.6	1002	5.6
	41–45	645	3.6	638	3.5
	46+	593	3.3	597	3.3
International Students	No	16711	93.2	16879	93.9
	Yes	1211	6.8	1104	6.1
English as a First Language	Yes	15445	86.2	15637	87.0
	No	2477	13.8	2346	13.0
Indigenous	No	17339	96.7	17406	96.8
	Yes	301	1.7	305	1.7
	Not disclosed	282	1.6	272	1.5
Residential Area	Metropolitan areas	14390	80.3	14450	80.4
	Provincial areas	3285	18.3	3300	18.4
	Remote areas	139	0.8	132	0.7
	International	77	0.4	76	0.4
	Invalid or Missing	31	0.2	25	0.1
Program Type	Undergraduate	11344	63.3	11392	63.3
	Postgraduate	6487	36.2	6500	36.1
	Pathway	91	0.5	91	0.5
Program Type by Year Level	Undergraduate first year	1120	6.2	1128	6.3
	Undergraduate second year	2357	13.2	2341	13.0
	Undergraduate third year	3983	22.2	3880	21.6
	Undergraduate fourth year	3059	17.1	3163	17.6
	Undergraduate fifth year or above	396	2.2	418	2.3
	Undergraduate graduated	429	2.4	462	2.6
	Postgraduate first year	3389	18.9	3394	18.9

⁵ In the descriptive text accompanying the tables throughout the report, most percentages are rounded to the nearest whole per cent.

	Postgraduate second year	2098	11.7	2077	11.5
	Postgraduate third year	228	1.3	238	1.3
	Postgraduate fourth year	219	1.2	211	1.2
	Postgraduate fifth year or above	201	1.1	210	1.2
	Postgraduate graduated	352	2.0	370	2.1
	Pathway first year	84	0.5	80	0.4
	Pathway second year	1	0.0	4	0.0
	Pathway third year	0	0.0	1	0.0
	Pathway fifth year or above	0	0.0	1	0.0
	Pathway graduated	6	0.0	5	0.0
Course Category	Teacher education: early childhood	1468	8.2	1502	8.4
	Teacher education: primary	7503	41.9	7547	42.0
	Teacher education: secondary	6718	37.5	6713	37.3
	Teacher education: special education	103	0.6	92	0.5
	Teacher education: other	2130	11.9	2129	11.8

The following demographic analysis separates the 2020 candidates into five groups for each component of the test: first-attempt candidates, second-attempt candidates (first resit), third-attempt candidates (second resit), fourth-attempt candidates (third resit), fifth-attempt candidates (fourth resit) and candidates who achieved no standard.

Table 8 shows the demographic characteristics of the first-attempt candidates for each component of the test in 2020. The demographic characteristics of this cohort are very similar to those described in Table 7 above.

Table 8: Demographic characteristics of first-attempt candidates who sat the test in 2020

Characteristic	Category	Literacy		Numeracy	
		N	%	N	%
Gender	Female	12089	73.2	11888	72.9
	Male	4417	26.8	4420	27.1
	Indeterminate/intersex	5	0.0	5	0.0
Age	17–25	10584	64.1	10454	64.1
	26–30	2587	15.7	2566	15.7
	31–35	1264	7.7	1258	7.7
	36–40	935	5.7	932	5.7
	41–45	598	3.6	581	3.6
	46+	543	3.3	522	3.2
International Students	No	15497	93.9	15274	93.6
	Yes	1014	6.1	1039	6.4
English as a First Language	Yes	14478	87.7	14246	87.3
	No	2033	12.3	2067	12.7
Indigenous	No	15995	96.9	15801	96.9
	Yes	260	1.6	257	1.6
	Not disclosed	256	1.6	255	1.6
Residential Area	Metropolitan areas	13234	80.2	13055	80.0
	Provincial areas	3058	18.5	3045	18.7
	Remote areas	124	0.8	118	0.7
	International	71	0.4	72	0.4
	Invalid or Missing	24	0.1	23	0.1
Program Type	Undergraduate	10293	62.3	10155	62.3
	Postgraduate	6130	37.1	6072	37.2
	Pathway	88	0.5	86	0.5
	Undergraduate first year	1122	6.8	1126	6.9

Program Type by Year Level	Undergraduate second year	2235	13.5	2253	13.8
	Undergraduate third year	3742	22.7	3642	22.3
	Undergraduate fourth year	2596	15.7	2561	15.7
	Undergraduate fifth year or above	302	1.8	293	1.8
	Undergraduate graduated	296	1.8	280	1.7
	Postgraduate first year	3374	20.4	3381	20.7
	Postgraduate second year	1916	11.6	1869	11.5
	Postgraduate third year	201	1.2	189	1.2
	Postgraduate fourth year	192	1.2	190	1.2
	Postgraduate fifth year or above	176	1.1	173	1.1
	Postgraduate graduated	271	1.6	270	1.7
	Pathway first year	84	0.5	81	0.5
	Pathway second year	2	0.0	3	0.0
	Pathway third year	0	0.0	0	0.0
	Pathway fifth year or above	0	0.0	0	0.0
	Pathway graduated	2	0.0	2	0.0
Course Category	Teacher education: early childhood	1254	7.6	1263	7.7
	Teacher education: primary	6894	41.8	6805	41.7
	Teacher education: secondary	6379	38.6	6311	38.7
	Teacher education: special education	86	0.5	75	0.5
	Teacher education: other	1898	11.5	1859	11.4

In 2020, the number of resits decreased from 2019 numbers. In 2020, there were 2237 resits (by 1989 candidates) of the literacy component (down from 3029 resits by 2620 candidates in 2019) and 2512 resits (by 2206 candidates) of the numeracy component (down from 3107 resits by 2676 candidates in 2019). For literacy, there were 1487 second attempts, 546 third attempts, 171 fourth attempts and 33 fifth attempts (compared to 2044, 748, 201 and 36 respectively in 2019). For numeracy, the resit numbers were 1578 second attempts, 673 third attempts, 212 fourth attempts and 49 fifth attempts (compared to 2058, 776, 231 and 42 respectively in 2019). These resit numbers included candidates who did not achieve one standard or more in 2016, 2017, 2018 and 2019.

Table 9 shows the demographic characteristics of the candidates who sat the test twice (first resit) during 2020. It shows that, as for previous years, the overwhelming majority of these resit candidates were female (82% for literacy, 87% for numeracy) and mostly in the age group 17–25 (68% for literacy, 67% for numeracy). The proportion of females in the second-attempt cohort exceeded the proportion in the first-attempt cohort (73%). The majority of second-attempt candidates were enrolled in an undergraduate course (73% for literacy, 74% for numeracy), similar to 2019 (75% and 71% respectively). These proportions exceed the proportion of undergraduate candidates in the first-attempt cohort (62%). Table 9 also shows that for literacy, the proportion of second-attempt candidates for whom English was not their first language was more than double that of first-attempt candidates (30% compared to 12%). For numeracy, the proportion was only slightly higher (17% compared to 13%). It can also be seen that the proportion of candidates from early childhood courses in the second-attempt cohort was 16% for literacy, nearly double the proportion for literacy (8%) in the first-attempt cohort. For numeracy the proportions were 13% compared to 8% respectively.

Table 9: Demographic characteristics of second-attempt candidates⁶

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	1221	82.1	6.5	1379	87.4	7.3
	Male	266	17.9	1.4	199	12.6	1.1
	Indeterminate/intersex	0	0.0	0.0	0	0.0	0.0
Age	17–25	1011	68.0	5.4	1052	66.7	5.6
	26–30	240	16.1	1.3	258	16.3	1.4
	31–35	87	5.9	0.5	95	6.0	0.5
	36–40	62	4.2	0.3	67	4.2	0.4
	41–45	47	3.2	0.3	42	2.7	0.2
	46+	40	2.7	0.2	64	4.1	0.3
International Students	No	1258	84.6	6.7	1507	95.5	8.0
	Yes	229	15.4	1.2	71	4.5	0.4
English as a First Language	Yes	1037	69.7	5.5	1310	83.0	7.0
	No	450	30.3	2.4	268	17.0	1.4
Indigenous	No	1429	96.1	7.6	1520	96.3	8.1
	Yes	33	2.2	0.2	42	2.7	0.2
	Not disclosed	25	1.7	0.1	16	1.0	0.1
Residential Area	Metropolitan areas	1201	80.8	6.4	1310	83.0	7.0
	Provincial areas	259	17.4	1.4	247	15.7	1.3
	Remote areas	15	1.0	0.1	14	0.9	0.1
	International	4	0.3	0.0	4	0.3	0.0
	Invalid or Missing	8	0.5	0.0	3	0.2	0.0
Program Type	Undergraduate	1078	72.5	5.7	1161	73.6	6.2
	Postgraduate	386	26.0	2.1	401	25.4	2.1
	Pathway	23	1.5	0.1	16	1.0	0.1
Program Type by Year Level	Undergraduate first year	18	1.2	0.1	12	0.8	0.1
	Undergraduate second year	154	10.4	0.8	121	7.7	0.6
	Undergraduate third year	313	21.0	1.7	311	19.7	1.7
	Undergraduate fourth year	464	31.2	2.5	548	34.7	2.9
	Undergraduate fifth year or above	54	3.6	0.3	69	4.4	0.4
	Undergraduate graduated	75	5.0	0.4	100	6.3	0.5
	Postgraduate first year	84	5.6	0.4	50	3.2	0.3
	Postgraduate second year	178	12.0	0.9	206	13.1	1.1
	Postgraduate third year	20	1.3	0.1	32	2.0	0.2
	Postgraduate fourth year	27	1.8	0.1	19	1.2	0.1
	Postgraduate fifth year or above	14	0.9	0.1	27	1.7	0.1
	Postgraduate graduated	63	4.2	0.3	67	4.2	0.4
	Pathway first year	17	1.1	0.1	12	0.8	0.1
	Pathway second year	0	0.0	0.0	1	0.1	0.0
	Pathway third year	0	0.0	0.0	0	0.0	0.0
	Pathway fifth year or above	0	0.0	0.0	1	0.1	0.0
	Pathway graduated	6	0.4	0.0	2	0.1	0.0
Course Category	Teacher education: early childhood	238	16.0	1.3	209	13.2	1.1
	Teacher education: primary	614	41.3	3.3	716	45.4	3.8
	Teacher education: secondary	385	25.9	2.1	396	25.1	2.1
	Teacher education: special education	15	1.0	0.1	12	0.8	0.1
	Teacher education: other	235	15.8	1.3	245	15.5	1.3

⁶ Includes candidates who registered from 2016 to 2019. Some unsuccessful candidates from Table 8 are included.

Table 10 shows the demographic characteristics of the third-attempt candidates in 2020. As for the second-attempt candidates, this cohort tended to be mostly female, undergraduates, and aged 17–25. As for the second-attempt cohort, these categories are more highly represented than in the first-attempt cohort.

Table 10 also shows that for literacy English was not the first language of 33% of the third-attempt candidates, whereas the proportion was only 12% for the first-attempt candidates (as shown in Table 8). For numeracy, English was not the first language of 17% of the third-attempt candidates, also higher than the proportion (13%) of the first-attempt candidates. It can also be seen that the proportion of candidates from early childhood courses in the third-attempt cohort was 17% for literacy, nearly double the proportion for literacy (8%) in the first-attempt cohort.

Table 10: Demographic characteristics of third-attempt candidates⁷

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sittings	N	%	% of Total Sittings
Gender	Female	453	83.0	2.4	601	89.3	3.2
	Male	93	17.0	0.5	71	10.5	0.4
	Indeterminate/intersex	0	0.0	0.0	1	0.1	0.0
Age	17–25	350	64.1	1.9	428	63.6	2.3
	26–30	105	19.2	0.6	127	18.9	0.7
	31–35	34	6.2	0.2	41	6.1	0.2
	36–40	26	4.8	0.1	25	3.7	0.1
	41–45	9	1.6	0.0	21	3.1	0.1
	46+	22	4.0	0.1	31	4.6	0.2
International Students	No	460	84.2	2.5	640	95.1	3.4
	Yes	86	15.8	0.5	33	4.9	0.2
English as a First Language	Yes	368	67.4	2.0	562	83.5	3.0
	No	178	32.6	0.9	111	16.5	0.6
Indigenous	No	517	94.7	2.8	641	95.2	3.4
	Yes	19	3.5	0.1	23	3.4	0.1
	Not disclosed	10	1.8	0.1	9	1.3	0.0
Residential Area	Metropolitan areas	445	81.5	2.4	573	85.1	3.0
	Provincial areas	93	17.0	0.5	93	13.8	0.5
	Remote areas	5	0.9	0.0	6	0.9	0.0
	International	2	0.4	0.0	1	0.1	0.0
	Invalid or Missing	1	0.2	0.0	0	0.0	0.0
Program Type	Undergraduate	389	71.2	2.1	471	70.0	2.5
	Postgraduate	157	28.8	0.8	199	29.6	1.1
	Pathway	0	0.0	0.0	3	0.4	0.0
Program Type by Year Level	Undergraduate first year	5	0.9	0.0	2	0.3	0.0
	Undergraduate second year	17	3.1	0.1	11	1.6	0.1
	Undergraduate third year	57	10.4	0.3	56	8.3	0.3
	Undergraduate fourth year	205	37.5	1.1	275	40.9	1.5
	Undergraduate fifth year or above	40	7.3	0.2	57	8.5	0.3
	Undergraduate graduated	65	11.9	0.3	70	10.4	0.4
	Postgraduate first year	8	1.5	0.0	10	1.5	0.1
	Postgraduate second year	84	15.4	0.4	94	14.0	0.5
	Postgraduate third year	7	1.3	0.0	28	4.2	0.1
	Postgraduate fourth year	8	1.5	0.0	14	2.1	0.1
	Postgraduate fifth year or above	13	2.4	0.1	14	2.1	0.1

⁷ Includes candidates who registered from 2016 to 2019. Some unsuccessful candidates from Tables 8 and 9 are included.

	Postgraduate graduated	37	6.8	0.2	39	5.8	0.2
	Pathway first year	0	0.0	0.0	0	0.0	0.0
	Pathway second year	0	0.0	0.0	1	0.1	0.0
	Pathway third year	0	0.0	0.0	1	0.1	0.0
	Pathway fifth year or above	0	0.0	0.0	0	0.0	0.0
	Pathway graduated	0	0.0	0.0	1	0.1	0.0
Course Category	Teacher education: early childhood	92	16.8	0.5	109	16.2	0.6
	Teacher education: primary	235	43.0	1.3	286	42.5	1.5
	Teacher education: secondary	131	24.0	0.7	172	25.6	0.9
	Teacher education: special education	6	1.1	0.0	3	0.4	0.0
	Teacher education: other	82	15.0	0.4	103	15.3	0.5

Table 11 shows demographic characteristics of the small number of candidates (203 literacy, 212 numeracy) who were authorised to sit the test for the fourth time in 2020. Again, this cohort was mostly female candidates (81% literacy and 91% numeracy). For literacy, the proportions of candidates in this cohort who were international students (20%) or for whom English was not their first language (43%) were considerably higher than the proportions of the first-attempt cohort (6% and 12% respectively).

Table 11: Demographic characteristics of fourth-attempt candidates⁸

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sittings	N	%	% of Total Sittings
Gender	Female	139	81.3	0.7	192	90.6	1.0
	Male	32	18.7	0.2	20	9.4	0.1
	Indeterminate/intersex	0	0.0	0.0	0	0.0	0.0
Age	17–25	100	58.5	0.5	111	52.4	0.6
	26–30	35	20.5	0.2	58	27.4	0.3
	31–35	11	6.4	0.1	13	6.1	0.1
	36–40	6	3.5	0.0	9	4.2	0.0
	41–45	12	7.0	0.1	12	5.7	0.1
	46+	7	4.1	0.0	9	4.2	0.0
International Students	No	137	80.1	0.7	205	96.7	1.1
	Yes	34	19.9	0.2	7	3.3	0.0
English as a First Language	Yes	98	57.3	0.5	182	85.8	1.0
	No	73	42.7	0.4	30	14.2	0.2
Indigenous	No	164	95.9	0.9	204	96.2	1.1
	Yes	5	2.9	0.0	5	2.4	0.0
	Not disclosed	2	1.2	0.0	3	1.4	0.0
Residential Area	Metropolitan areas	146	85.4	0.8	175	82.5	0.9
	Provincial areas	22	12.9	0.1	37	17.5	0.2
	Remote areas	1	0.6	0.0	0	0.0	0.0
	International	2	1.2	0.0	0	0.0	0.0
	Invalid or Missing	0	0.0	0.0	0	0.0	0.0
Program Type	Undergraduate	109	63.7	0.6	146	68.9	0.8
	Postgraduate	62	36.3	0.3	66	31.1	0.4
	Pathway	0	0.0	0.0	0	0.0	0.0
Program Type by Year Level	Undergraduate first year	0	0.0	0.0	0	0.0	0.0
	Undergraduate second year	3	1.8	0.0	1	0.5	0.0
	Undergraduate third year	7	4.1	0.0	4	1.9	0.0
	Undergraduate fourth year	41	24.0	0.2	65	30.7	0.3
	Undergraduate fifth year or above	17	9.9	0.1	24	11.3	0.1
	Undergraduate graduated	41	24.0	0.2	52	24.5	0.3
	Postgraduate first year	2	1.2	0.0	2	0.9	0.0
	Postgraduate second year	22	12.9	0.1	18	8.5	0.1
	Postgraduate third year	7	4.1	0.0	5	2.4	0.0
	Postgraduate fourth year	4	2.3	0.0	5	2.4	0.0
	Postgraduate fifth year or above	6	3.5	0.0	3	1.4	0.0
	Postgraduate graduated	21	12.3	0.1	33	15.6	0.2
Course Category	Teacher education: early childhood	27	15.8	0.1	26	12.3	0.1
	Teacher education: primary	65	38.0	0.3	107	50.5	0.6
	Teacher education: secondary	45	26.3	0.2	51	24.1	0.3
	Teacher education: special education	0	0.0	0.0	4	1.9	0.0
	Teacher education: other	34	19.9	0.2	24	11.3	0.1

⁸ Includes candidates who registered from 2016 to 2019. Some unsuccessful candidates from Tables 8–10 are included.

In 2020, a very small number of candidates (33 for literacy, 49 for numeracy) were granted fifth attempts. While the demographic characteristics of the fifth-attempt cohort are presented in Table 12, the numbers are too small to make any meaningful observations. However, almost all of the fifth-attempt candidates were female and most were undertaking a primary course.

Table 12: Demographic characteristics of fifth-attempt candidates

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	28	84.8	0.1	42	85.7	0.2
	Male	5	15.2	0.0	7	14.3	0.0
	Indeterminate/intersex	0	0.0	0.0	0	0.0	0.0
Age	17–25	18	54.5	0.1	22	44.9	0.1
	26–30	6	18.2	0.0	16	32.7	0.1
	31–35	2	6.1	0.0	4	8.2	0.0
	36–40	2	6.1	0.0	1	2.0	0.0
	41–45	0	0.0	0.0	2	4.1	0.0
	46+	5	15.2	0.0	4	8.2	0.0
International Students	No	31	93.9	0.2	49	100.0	0.3
	Yes	2	6.1	0.0	0	0.0	0.0
English as a First Language	Yes	22	66.7	0.1	44	89.8	0.2
	No	11	33.3	0.1	5	10.2	0.0
Indigenous	No	31	93.9	0.2	47	95.9	0.2
	Yes	1	3.0	0.0	1	2.0	0.0
	Not disclosed	1	3.0	0.0	1	2.0	0.0
Residential Area	Metropolitan areas	21	63.6	0.1	40	81.6	0.2
	Provincial areas	12	36.4	0.1	9	18.4	0.0
	Remote areas	0	0.0	0.0	0	0.0	0.0
	International	0	0.0	0.0	0	0.0	0.0
	Invalid or Missing	0	0.0	0.0	0	0.0	0.0
Program Type	Undergraduate	23	69.7	0.1	37	75.5	0.2
	Postgraduate	10	30.3	0.1	12	24.5	0.1
	Pathway	0	0.0	0.0	0	0.0	0.0
Program Type by Year Level	Undergraduate first year	0	0.0	0.0	0	0.0	0.0
	Undergraduate second year	0	0.0	0.0	1	2.0	0.0
	Undergraduate third year	1	3.0	0.0	0	0.0	0.0
	Undergraduate fourth year	11	33.3	0.1	11	22.4	0.1
	Undergraduate fifth year or above	3	9.1	0.0	8	16.3	0.0
	Undergraduate graduated	8	24.2	0.0	17	34.7	0.1
	Postgraduate first year	0	0.0	0.0	0	0.0	0.0
	Postgraduate second year	2	6.1	0.0	2	4.1	0.0
	Postgraduate third year	1	3.0	0.0	0	0.0	0.0
	Postgraduate fourth year	1	3.0	0.0	1	2.0	0.0
	Postgraduate fifth year or above	0	0.0	0.0	0	0.0	0.0
	Postgraduate graduated	6	18.2	0.0	9	18.4	0.0
Course Category	Teacher education: early childhood	4	12.1	0.0	5	10.2	0.0
	Teacher education: primary	19	57.6	0.1	23	46.9	0.1
	Teacher education: secondary	6	18.2	0.0	9	18.4	0.0
	Teacher education: special education	0	0.0	0.0	1	2.0	0.0
	Teacher education: other	4	12.1	0.0	11	22.4	0.1

Table 13 shows the demographic characteristics for the candidates who had achieved no standard at the end of 2020. By the end of 2020, there were 1888 candidates who had not achieved the literacy standard and 1917 candidates who had not achieved the numeracy standard. The demographics of this group are

similar to those of the previously described resit cohorts except that this group has the highest proportion of candidates from early childhood courses (17% for literacy, 15% for numeracy) compared to 8% of the first-attempt cohort.

Table 13: Demographic characteristics of candidates who achieved no standard by the end of 2020

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sittings	N	%	% of Total Sittings
Gender	Female	1574	83.4	8.4	1712	89.3	9.1
	Male	313	16.6	1.7	204	10.6	1.1
	Indeterminate/intersex	1	0.1	0.0	1	0.1	0.0
Age	17–25	1204	63.8	6.4	1205	62.9	6.4
	26–30	303	16.0	1.6	313	16.3	1.7
	31–35	131	6.9	0.7	141	7.4	0.7
	36–40	91	4.8	0.5	85	4.4	0.5
	41–45	79	4.2	0.4	80	4.2	0.4
	46+	80	4.2	0.4	93	4.9	0.5
International Students	No	1590	84.2	8.5	1836	95.8	9.8
	Yes	298	15.8	1.6	81	4.2	0.4
English as a First Language	Yes	1237	65.5	6.6	1573	82.1	8.4
	No	651	34.5	3.5	344	17.9	1.8
Indigenous	No	1812	96.0	9.7	1836	95.8	9.8
	Yes	45	2.4	0.2	56	2.9	0.3
	Not disclosed	31	1.6	0.2	25	1.3	0.1
Residential Area	Metropolitan areas	1531	81.1	8.2	1596	83.3	8.5
	Provincial areas	315	16.7	1.7	299	15.6	1.6
	Remote areas	22	1.2	0.1	14	0.7	0.1
	International	14	0.7	0.1	3	0.2	0.0
	Invalid or Missing	6	0.3	0.0	5	0.3	0.0
Program Type	Undergraduate	1406	74.5	7.5	1466	76.5	7.8
	Postgraduate	451	23.9	2.4	426	22.2	2.3
	Pathway	31	1.6	0.2	25	1.3	0.1
Program Type by Year Level	Undergraduate 1st year	156	8.3	0.8	128	6.7	0.7
	Undergraduate 2nd year	344	18.2	1.8	319	16.6	1.7
	Undergraduate 3rd year	416	22.0	2.2	420	21.9	2.2
	Undergraduate 4th year	323	17.1	1.7	403	21.0	2.1
	Undergrad 5th yr or above	59	3.1	0.3	79	4.1	0.4
	Undergrad graduated	108	5.7	0.6	117	6.1	0.6
	Postgraduate 1st year	161	8.5	0.9	121	6.3	0.6
	Postgraduate 2nd year	153	8.1	0.8	155	8.1	0.8
	Postgraduate 3rd year	32	1.7	0.2	34	1.8	0.2
	Postgraduate 4th year	22	1.2	0.1	21	1.1	0.1
	Postgrad 5th yr or above	16	0.8	0.1	30	1.6	0.2
	Postgraduate graduated	67	3.5	0.4	65	3.4	0.3
	Pathway 1st year	30	1.6	0.2	22	1.1	0.1
	Pathway 2nd year	0	0.0	0.0	1	0.1	0.0
	Pathway 3rd year	0	0.0	0.0	0	0.0	0.0
	Pathway 5th yr or above	0	0.0	0.0	1	0.1	0.0
	Pathway graduated	1	0.1	0.0	1	0.1	0.0
Course Category	Early childhood	319	16.9	1.7	293	15.3	1.6
	Primary	752	39.8	4.0	835	43.6	4.4
	Secondary	447	23.7	2.4	447	23.3	2.4
	Special education	10	0.5	0.1	11	0.6	0.1
	Other	360	19.1	1.9	331	17.3	1.8

Those candidates who had achieved no standard by the end of 2020 had up to five attempts at the test, as shown in Table 14. It is expected that some of these candidates will resit the test again in 2021.

Table 14: Number of attempts by candidates who achieved no standard by the end of 2020

Component	Year of registration	At end of	Number of 1-attempt candidates	Number of 2-attempt candidates	Number of 3-attempt candidates	Number of 4-attempt candidates	Number of 5-attempt candidates	Number of 7-attempt candidates
Literacy	2016	2017	140	53	21	10	0	0
	2016	2018	0	6	5	18	5	0
	2016	2019	0	4	12	5	6	0
	2016	2020	0	1	1	4	0	0
	2017	2018	362	167	136	46	4	0
	2017	2019	0	28	67	48	14	1
	2017	2020	0	14	22	20	6	0
	2018	2019	526	270	139	32	0	0
	2018	2020	0	39	66	43	6	0
	2019	2020	666	300	136	19	1	0
	2020	2020	1143	190	14	0	0	0
Numeracy	2016	2017	162	77	42	9	0	0
	2016	2018	0	8	12	27	13	0
	2016	2019	0	6	10	13	7	0
	2016	2020	0	2	2	5	0	0
	2017	2018	374	200	136	42	4	0
	2017	2019	0	36	61	41	15	0
	2017	2020	0	18	24	14	5	0
	2018	2019	557	302	137	27	0	0
	2018	2020	0	64	76	31	9	0
	2019	2020	724	334	135	19	1	0
	2020	2020	1141	166	15	0	0	0

Table 15 groups the location of testing into capital cities, regional cities and remote proctoring. It shows that 51% of candidates in 2020 completed the test by remote proctoring compared to 22% in 2019, 24% in 2018, 40% in 2017 (when remote proctoring was the only medium available in test window 1) and 18% in 2016. A more detailed breakdown by individual test centre may be found in Appendix 1.

Table 15: Number and proportion of first-attempt candidates who participated at test centres and by remote proctoring

Location of Testing	First Attempt			
	Literacy		Numeracy	
	N	%	N	%
Test Centres	8118	49.2	8006	49.1
– Capital Cities	7221	43.7	7142	43.8
– Regional Cities	897	5.4	864	5.3
Remote Proctoring	8393	50.8	8307	50.9
Total	16511	100	16313	100

Table 16 shows how resit candidates were distributed by location of testing in 2020. As in previous years, remote proctoring was increasingly used by resit candidates. For example, in the literacy component, while 51% of first-attempt candidates used remote proctoring in 2020, this rose to 58% of second-attempt candidates, 68% of third-attempt and fourth-attempt candidates and 73% of fifth-attempt candidates. The pattern was similar for numeracy.

Table 16: Number and proportion of resit candidates who participated at test centres and by remote proctoring

Location of Testing	Second Attempt				Third Attempt				Fourth Attempt				Fifth Attempt			
	Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Test Centres	624	42.0	696	44.1	174	31.9	266	39.5	55	32.2	55	25.9	9	27.3	14	28.6
– Capital Cities	563	37.9	620	39.3	153	28.0	235	34.9	53	31.0	53	25.0	8	24.2	14	28.6
– Regional Cities	61	4.1	76	4.8	21	3.8	31	4.6	2	1.2	2	0.9	1	3.0	0	0.0
Remote Proctoring	863	58.0	882	55.9	372	68.1	407	60.5	116	67.8	157	74.1	24	72.7	35	71.4
Total	1487	100	1578	100	546	100	673	100	171	100	212	100	33	100	49	100

2.2 Demographic Characteristics of Candidates by Test Windows

In 2020, the number of candidates presenting at each test window, for both literacy and numeracy, reflected the impact of COVID-19. Test windows 3 and 4 had the largest number of candidates for both literacy and numeracy while for test window 2, with no test centres available, the number of candidates was substantially less, as previously described. There were minimal differences between subgroups.

Table 17: Demographic characteristics of candidates by test windows – literacy

Characteristic	Category	TW1		TW2		TW3		TW4	
		N	%	N	%	N	%	N	%
Gender	Female	4107	74.9	371	66.4	4825	74.8	4627	73.9
	Male	1370	25.0	188	33.6	1622	25.2	1633	26.1
	Indeterminate/intersex	4	0.1	0	0.0	1	0.0	0	0.0
Age	17–25	3568	65.1	281	50.3	4230	65.6	3984	63.6
	26–30	834	15.2	125	22.4	998	15.5	1016	16.2
	31–35	402	7.3	57	10.2	469	7.3	470	7.5
	36–40	315	5.7	43	7.7	321	5.0	352	5.6
	41–45	194	3.5	23	4.1	224	3.5	225	3.6
	46+	168	3.1	30	5.4	206	3.2	213	3.4
International Students	No	5186	94.6	512	91.6	5898	91.5	5787	92.4
	Yes	295	5.4	47	8.4	550	8.5	473	7.6
English as a First Language	Yes	4774	87.1	449	80.3	5451	84.5	5329	85.1
	No	707	12.9	110	19.7	997	15.5	931	14.9
Indigenous	No	5260	96.0	532	95.2	6262	97.1	6082	97.2
	Yes	101	1.8	19	3.4	102	1.6	96	1.5
	Not disclosed	120	2.2	8	1.4	84	1.3	82	1.3
Residential Area	Metropolitan areas	4366	79.7	422	75.5	5205	80.7	5054	80.7
	Provincial areas	1038	18.9	124	22.2	1169	18.1	1113	17.8
	Remote areas	42	0.8	9	1.6	47	0.7	47	0.8
	International	23	0.4	3	0.5	17	0.3	36	0.6
	Invalid or Missing	12	0.2	1	0.2	10	0.2	10	0.2
Program Type	Undergraduate	3629	66.2	347	62.1	3940	61.1	3976	63.5
	Postgraduate	1844	33.6	201	36.0	2459	38.1	2241	35.8
	Pathway	8	0.1	11	2.0	49	0.8	43	0.7
Program Type by Year Level	Undergraduate first year	173	3.2	8	1.4	351	5.4	613	9.8
	Undergraduate second year	701	12.8	7	1.3	916	14.2	785	12.5
	Undergraduate third year	1165	21.3	18	3.2	1321	20.5	1616	25.8
	Undergraduate fourth year	1268	23.1	206	36.9	1106	17.2	737	11.8
	Undergraduate fifth yr +	125	2.3	42	7.5	142	2.2	107	1.7
	Undergraduate graduated	197	3.6	66	11.8	104	1.6	118	1.9
	Postgraduate first year	627	11.4	4	0.7	1356	21.0	1481	23.7
	Postgraduate second year	836	15.3	102	18.2	768	11.9	496	7.9
	Postgraduate third year	76	1.4	16	2.9	77	1.2	67	1.1
	Postgraduate fourth year	76	1.4	15	2.7	72	1.1	69	1.1
	Postgraduate fifth yr +	60	1.1	14	2.5	85	1.3	50	0.8
	Postgraduate graduated	169	3.1	50	8.9	101	1.6	78	1.2
	Pathway first year	4	0.1	10	1.8	45	0.7	42	0.7
	Pathway second year	1	0.0	0	0.0	1	0.0	0	0.0
	Pathway third year	0	0.0	0	0.0	0	0.0	0	0.0
	Pathway fifth year +	0	0.0	0	0.0	0	0.0	0	0.0
	Pathway graduated	3	0.1	1	0.2	3	0.0	1	0.0

Course Category	Early childhood	479	8.7	50	8.9	595	9.2	491	7.8
	Primary	2355	43.0	231	41.3	2740	42.5	2501	40.0
	Secondary	2001	36.5	195	34.9	2342	36.3	2408	38.5
	Special education	34	0.6	3	0.5	34	0.5	36	0.6
	Other	612	11.2	80	14.3	737	11.4	824	13.2

The observations and patterns described above for literacy candidates across the four test windows are also pertinent for numeracy, as shown in Table 18.

Table 18: Demographic characteristics of candidates by test windows – numeracy

Characteristic	Category	TW1		TW2		TW3		TW4	
		N	%	N	%	N	%	N	%
Gender	Female	4242	75.9	423	71.8	4783	74.9	4654	74.4
	Male	1343	24.0	165	28.0	1606	25.1	1603	25.6
	Indeterminate/intersex	4	0.1	1	0.2	1	0.0	0	0.0
Age	17–25	3642	65.2	301	51.1	4174	65.3	3950	63.1
	26–30	853	15.3	125	21.2	994	15.6	1053	16.8
	31–35	392	7.0	56	9.5	467	7.3	496	7.9
	36–40	317	5.7	43	7.3	333	5.2	341	5.4
	41–45	205	3.7	26	4.4	216	3.4	211	3.4
	46+	180	3.2	38	6.5	206	3.2	206	3.3
International Students	No	5352	95.8	563	95.6	5887	92.1	5873	93.9
	Yes	237	4.2	26	4.4	503	7.9	384	6.1
English as a First Language	Yes	4943	88.4	508	86.2	5457	85.4	5436	86.9
	No	646	11.6	81	13.8	933	14.6	821	13.1
Indigenous	No	5363	96.0	563	95.6	6211	97.2	6076	97.1
	Yes	109	2.0	18	3.1	97	1.5	104	1.7
	Not disclosed	117	2.1	8	1.4	82	1.3	77	1.2
Residential Area	Metropolitan areas	4458	79.8	450	76.4	5161	80.8	5084	81.3
	Provincial areas	1061	19.0	126	21.4	1154	18.1	1090	17.4
	Remote areas	41	0.7	7	1.2	45	0.7	45	0.7
	International	21	0.4	4	0.7	22	0.3	30	0.5
	Invalid or Missing	8	0.1	2	0.3	8	0.1	8	0.1
Program Type	Undergraduate	3701	66.2	379	64.3	3910	61.2	3980	63.6
	Postgraduate	1874	33.5	202	34.3	2443	38.2	2231	35.7
	Pathway	14	0.3	8	1.4	37	0.6	46	0.7
Program Type by Year Level	Undergraduate first year	177	3.2	6	1.0	329	5.1	628	10.0
	Undergraduate second year	703	12.6	5	0.8	896	14.0	783	12.5
	Undergraduate third year	1144	20.5	18	3.1	1268	19.8	1583	25.3
	Undergraduate fourth year	1327	23.7	226	38.4	1142	17.9	765	12.2
	Undergraduate fifth year +	141	2.5	49	8.3	152	2.4	109	1.7
	Undergraduate graduated	209	3.7	75	12.7	123	1.9	112	1.8
	Postgraduate first year	636	11.4	4	0.7	1352	21.2	1451	23.2
	Postgraduate second year	833	14.9	95	16.1	759	11.9	502	8.0
	Postgraduate third year	90	1.6	14	2.4	74	1.2	76	1.2
	Postgraduate fourth year	79	1.4	16	2.7	72	1.1	62	1.0
	Postgraduate fifth year +	58	1.0	17	2.9	83	1.3	59	0.9
	Postgraduate graduated	178	3.2	56	9.5	103	1.6	81	1.3
	Pathway first year	8	0.1	7	1.2	33	0.5	45	0.7
	Pathway second year	3	0.1	1	0.2	1	0.0	0	0.0
	Pathway third year	0	0.0	0	0.0	1	0.0	0	0.0
	Pathway fifth year +	1	0.0	0	0.0	0	0.0	0	0.0

	Pathway graduated	2	0.0	0	0.0	2	0.0	1	0.0
Course Category	Early childhood	501	9.0	56	9.5	569	8.9	486	7.8
	Primary	2394	42.8	256	43.5	2749	43.0	2538	40.6
	Secondary	2017	36.1	200	34.0	2346	36.7	2376	38.0
	Special education	30	0.5	3	0.5	27	0.4	35	0.6
	Other	647	11.6	74	12.6	699	10.9	822	13.1

Table 19 and Table 20 show the numbers and proportions of candidates participating in test centres and by remote proctoring in each test window for literacy and numeracy respectively. As above, the majority of candidates overall present for test windows 3 and 4. No candidates presented at any test centres and a small number used remote proctoring in test window 2. For test window 3, no candidates presented at test centres in regional cities. The percentage of candidates using remote proctoring in 2020 for test window 1 was similar to 2019. In window 2, 100% of a small number of candidates used remote proctoring. For test windows 3 and 4, the percentages were substantially greater than in 2019 with 63% of candidates using remote proctoring for literacy and numeracy.

A more detailed breakdown by test centre can be found in Appendix 2.

Table 19: Number and proportion of candidates in test centres and by remote proctoring by test window – literacy

Location of Testing	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Test Centres	4329	79.0	0	0.0	2420	37.5	2231	35.6
– Capital Cities	3487	63.6	0	0.0	2420	37.5	2091	33.4
– Regional Cities	842	15.4	0	0.0	0	0.0	140	2.2
Remote Proctoring	1152	21.0	559	100.0	4028	62.5	4029	64.4
Total	5481	100	559	100	6448	100	6260	100

Table 20: Number and proportion of candidates in test centres and by remote proctoring by test window – numeracy

Location of Testing	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Test Centres	4402	78.8	0	0.0	2415	37.8	2220	35.5
– Capital Cities	3575	64.0	0	0.0	2415	37.8	2074	33.1
– Regional Cities	827	14.8	0	0.0	0	0.0	146	2.3
Remote Proctoring	1187	21.2	589	100.0	3975	62.2	4037	64.5
Total	5589	100	589	100	6390	100	6257	100

2.3 Accessibility and Accommodations

In 2020, testing conditions were modified to accommodate 555 candidates who required reasonable adjustments. This was an increase of 27% on the 437 candidates in 2019. Accessible versions of the test were also available for candidates who required supportive technology, such as a screen reader. The online accessible versions of the test were used on several occasions in 2020. Two candidates were provided with a paper version of the test for the November 2020 test window. There was a significant increase in the number of requests to accommodate anxiety disorder and Attention Hyper Activity Disorder, while the number of requests for dyslexia continued to decline. Table 21 indicates the number of accommodations made for the most common conditions. A complete list of conditions follows the table.

Table 21: Largest accommodation groups

Condition	Literacy					Numeracy				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Anxiety disorder (inc. panic attacks and test anxiety)	3	28	30	72	143	5	31	50	151	230
Dyslexia	9	28	48	31	27	9	25	57	36	26
Diabetes	11	8	12	2	4	10	9	13	3	7
Epilepsy/Seizures	1	5	3	2	0	2	6	3	2	3
Attention deficit hyperactivity disorder	1	5	6	2	10	1	5	6	4	10
Hearing impairment	2	5	1	2	6	1	4	5	2	4
Visual impairment/eye conditions	6	4	7	16	12	6	5	4	13	11
Dyscalculia	NA	NA	NA	NA	NA	2	7	2	8	5

Types of conditions:

- Acquired Brain Injury
- Adjustment Disorder
- Anxiety, Depression, Panic Attacks
- Asperger's Syndrome (High functioning – ASD)
- Asthma
- Autoimmune Disorder/Crohn's Disease
- Auditory Processing Disorder and Visual-Perceptual Dysfunction (Scotopic Sensitivity / Irlen Syndrome)
- Auditory-Verbal Memory Disorder / Language Learning Disability
- Autism Spectrum Disorder
- Basilar Tip Migraine Syndrome
- Bilateral Sensorineural Hearing Loss
- Bipolar Disorder
- Borderline Personality Disorder
- Brain Tumour/Injury
- Carpal Tunnel Syndrome
- Chronic Fatigue Syndrome
- Chronic Pain
- Chronic Pseudo Obstruction of Small Intestine
- Congenital Nystagmus (Eye Disorder)

- Cranial Diabetes Insipidus
- Developmental Coordination Disorder
- Diabetes
- Dyslexia, Dyscalculia, ADD, ADHD
- Dysmenorrhoea
- Dyspraxia
- Endometriosis
- Epilepsy
- Familial Adenomatous Polyposis
- Fibromyalgia
- Grapheme – Colour Synaesthesia
- Herniated Discs and Fractured Vertebrae
- High Blood Pressure and Hypoglycaemia
- Hip Dysphasia
- Idiopathic Tercentennial Hypertension Irlen Syndrome
- Low Working Memory
- Migraine
- Multiple Sclerosis
- Narcolepsy
- Obsessive Compulsive Disorder and Pronounced Exam Phobia
- Pigmentary Retinopathy with High Myopia and Astigmatism
- Polycystic ovary syndrome
- Pregnancy-related health conditions
- Profoundly Deaf
- Pulmonary Hypertension
- PTSD
- Rheumatoid Arthritis
- Scoliosis
- Sciatic Nerve Pain
- Scotopic Sensitivity
- Spinal Fusion
- Spontaneous Urticaria
- Temporary physical conditions – e.g. broken leg, broken wrist, back injury
- Trigeminal Neuralgia
- Tourette Syndrome
- Ulcerative Colitis
- Visual Impairment / Legally Blind

Types of accommodations granted:

- Emergency Action Plan (for Epilepsy – seizures)
- Extra time (20 minutes or more per test component)
- Management of hearing impairment for test sessions conducted by remote proctoring (communication via chat box only)
- Permission to bring blood-insulin monitor, epipen, and/or food and drinks relating to medical condition
- Permission to bring support aids (heat pack, cushion, pillow, essential oil, ergonomic mouse and mobility aids)
- Permission to have guide dog
- Permission to wear brace / splint / wrist support
- Permission to take medication (e.g. ventolin inhaler and diabetes/glucose monitoring kit)

- Permission to use eye drops
- Permission to stand and stretch
- Permission to magnify text and to wear Irlen Spectral Filters / coloured glasses / coloured overlay for the computer monitor
- Permission to use a second monitor
- Permission to use a highlighter
- Permission to use a calculator provided by the test centre
- Permission to use text-to-speech software or screen reader
- Permission to use personal mouse
- Permission to wear ear plugs or noise-cancelling headphones during the test session
- Provision of paper copy of the test
- Provision of gender-specific remote proctors
- Provision of additional blank scratch paper
- Provision of a small group test environment (no more than 5 candidates per test room)
- Provision of a darker test room
- Provision of ergonomic office chair or adjustable desk
- Provision of extra chair to rest or elevate injured leg
- Provision of a human reader
- Rest breaks including supervised brief naps (5 mins or more per test component)
- Seated near bathroom
- Seated at the front of the test room (for hearing loss) and other special seating requests for the front and back of the test room, and near the aisle, or away from the lights
- Seated in a quiet room
- Special support for candidates with limited mobility (i.e. limit time standing in the registration queue)
- Test supervisor to provide written assistance during the instructions component of the test sessions.

3. CANDIDATE PERFORMANCE

This section describes the performance of candidates who participated in the test in 2020. The analysis divides the cohort of candidates into two groups: first-attempt candidates (the majority) and those who did not achieve the standard at their first attempt and resat the test. It presents the distributions of candidate performance overall, by subscale and by candidates' collected demographic information: gender, age group, program type, program type by year level, course category, and location of testing.

3.1 Scale Score Distributions

Figure 1 and Figure 2 present the distributions of first-attempt candidate performance on the literacy component and numeracy component respectively. The vertical line in each figure represents the standard for that component of the test.

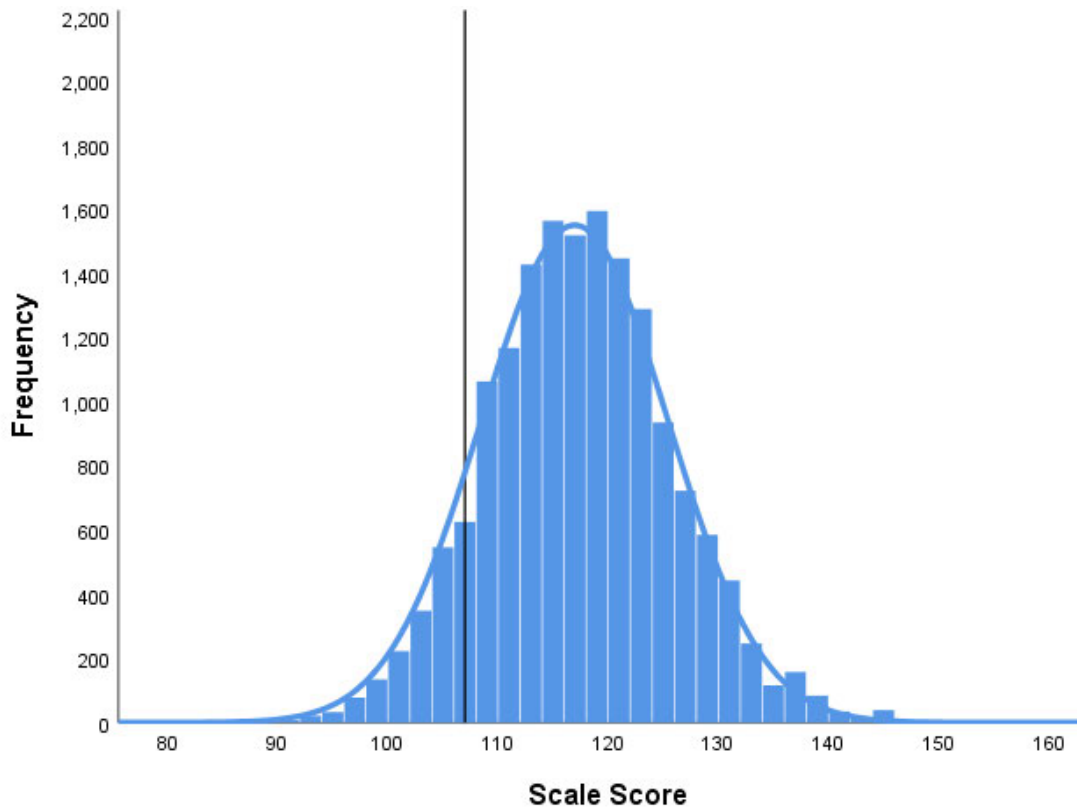


Figure 1: Distribution of candidate scale scores for literacy⁹

⁹ The scale score of the literacy standard is 107.

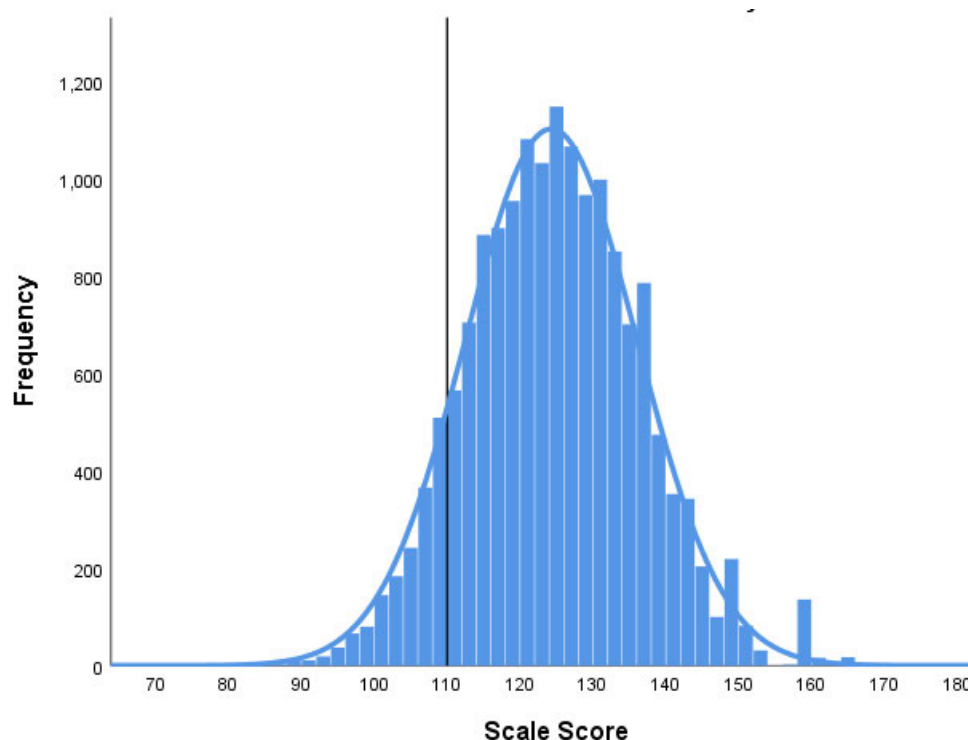


Figure 2: Distribution of candidate scale scores for numeracy¹⁰

Figure 1 and Figure 2 show that scores in both tests are approximately normally distributed and that the tests spread candidates acceptably across the score scales. For both literacy and numeracy, the majority of candidates achieved scale scores above the standard at their first attempt. It can be seen that a proportion of candidates achieved scale scores below the standard at their first attempt.

3.2 Candidate Scale Scores by Subscales and Subgroups

Table 22 shows the performance of first-attempt candidates in 2020. It shows the number (N) of candidates, the mean scale scores and standard deviation of the scale scores, overall and by subscale. The pass rates for the literacy and numeracy components for this cohort of candidates are also shown in this table. The overall mean scale score for literacy was 116.9 (similar to 117.5 in 2016, 117.0 in 2017, and 116.8 in both 2018 and 2019) with a pass rate of 89.6% (down from 93.3% in 2016, but up from 89.2% in 2017, 87.5% in 2018 and 88.7% in 2019). The overall mean scale score for numeracy was 124.3 (up from 122.4 in 2016, 123.0 in 2017, 122.8 in 2018 and 123.2 in 2019) with a pass rate of 89.7% (down from 92.4% in 2016 and 90.0 in 2017, but up from 87.4% in 2018 and 87.7% in 2019). The decline in the pass rates in literacy and numeracy for first-attempt candidates from 2016 and 2017 is because the revised standards applied for the whole of 2018, 2019 and 2020 compared to only the second half of 2017.

Table 22 also shows the performance of candidates on each subscale. The performance of candidates by subscale was similar to the performance of candidates on the whole test, except for the numeracy subscale ‘calculator not available’. As for previous years, the average performance of candidates on the numeracy subscale ‘calculator not available’ was lower than the average performance on the numeracy subscale ‘calculator available’. The trend over time, however, is that the difference is decreasing. It was 3.5 scale score points in 2017, 2.5 scale score points in 2018, 1.2 scale score points in 2019 and 1.0 scale score point in 2020. The decrease in difference is mostly due to improving performance on the ‘calculator not available’ subscale, possibly indicating greater attention to the basic number sense and computational skills required.

¹⁰ The scale score of the numeracy standard is 110.

Scale score frequency distributions for the candidates who participated in the tests are shown in Appendix 3.

Table 22: Candidate performance overall and by subscale for first-attempt candidates

Component	Whole test and subscale	N	Mean	S.D.	Pass Rate
Literacy	Overall	16511	116.9	8.5	89.6
	Reading		117.0	8.9	
	Technical Skills of Writing		116.9	10.0	
Numeracy	Overall	16313	124.3	11.8	89.7
	Number & Algebra		125.0	13.3	
	Measurement & Geometry		122.7	11.7	
	Statistics & Probability		123.6	11.9	
	Calculator available		124.4	11.6	
	Calculator not available		123.4	15.0	

Table 23 shows the number of candidates (N), mean scale score, and pass rate by demographic characteristics for both literacy and numeracy. Performance of any subgroup with a sample size of less than 10 was not reported.

Table 23: Performance by demographic characteristics for first-attempt candidates

Characteristic	Category	Literacy			Numeracy		
		N	Mean	Pass Rate	N	Mean	Pass Rate
Gender	Female	12089	116.4	88.2	11888	122.5	87.3
	Male	4417	118.5	93.4	4420	129.0	96.2
	Indeterminate/intersex	5	-	-	5	-	-
Age	17–25	10584	115.9	89.1	10454	123.6	89.4
	26–30	2587	118.1	89.8	2566	125.0	90.3
	31–35	1264	118.9	91.3	1258	126.1	90.9
	36–40	935	119.1	91.4	932	125.8	91.7
	41–45	598	120.1	90.1	581	125.9	90.4
	46+	543	120.0	89.7	522	125.0	87.0
International Students	No	15497	117.2	90.6	15274	124.2	89.6
	Yes	1014	112.6	74.3	1039	125.7	91.5
English as a First Language	Yes	14478	117.6	91.7	14246	124.3	90.2
	No	2033	112.5	74.2	2067	123.7	86.6
Indigenous	No	15995	117.0	89.6	15801	124.3	89.8
	Yes	260	115.1	87.3	257	120.7	84.4
	Not disclosed	256	117.2	89.8	255	125.8	92.2
Residential Area	Metropolitan areas	13234	116.9	89.6	13055	124.2	89.4
	Provincial areas	3058	117.2	89.7	3045	124.3	90.8
	Remote areas	124	118.1	89.5	118	123.6	90.7
	International	71	117.1	85.9	72	129.8	95.8
	Invalid or Missing	24	115.1	75.0	23	123.8	82.6
Program Type	Undergraduate	10293	115.3	87.7	10155	122.3	87.7
	Postgraduate	6130	119.8	93.1	6072	127.7	93.5
	Pathway	88	109.4	61.4	86	115.0	67.4
Program Type by Year Level	Undergraduate first year	1122	114.7	85.1	1126	123.0	87.8
	Undergraduate second year	2235	114.9	85.5	2253	122.0	86.2
	Undergraduate third year	3742	115.3	89.2	3642	122.5	89.0
	Undergraduate fourth year	2596	116.0	89.4	2561	122.4	87.7
	Undergraduate fifth year or above	302	116.0	90.4	293	122.0	87.4
	Undergraduate graduated	296	113.1	79.4	280	119.3	80.0
	Postgraduate first year	3374	120.3	94.1	3381	129.1	95.4
	Postgraduate second year	1916	120.0	93.5	1869	126.5	92.5
	Postgraduate third year	201	118.0	88.6	189	124.8	88.9
	Postgraduate fourth year	192	118.8	90.1	190	124.5	88.4

	Postgraduate fifth year or above	176	120.2	93.8	173	127.4	92.5
	Postgraduate graduated	271	115.5	82.3	270	122.4	84.1
	Pathway first year	84	109.2	59.5	81	115.1	67.9
	Pathway second year	2	-	-	3	-	-
	Pathway graduated	2	-	-	2	-	-
Course Category	Early childhood	1254	113.1	77.6	1263	119.7	81.2
	Primary	6894	116.4	90.1	6805	122.9	88.9
	Secondary	6379	118.8	93.1	6311	127.3	93.5
	Special education	86	117.0	89.5	75	122.6	92.0
	Other	1898	115.0	83.8	1859	122.0	85.6

The t-test and Cohen's *d* for effect size were used to determine if group mean scale scores were significantly different for first-attempt candidates. Only differences where $p \leq 0.05$ and $d > 0.2$ or $d < -0.2$ are reported here as significant.

Table 23 shows that the male candidates again significantly outperformed female candidates in both literacy and numeracy, but more so in numeracy. For the 2020 cohort, the literacy mean scale score of male candidates (118.5) was significantly higher (effect size 0.25) than the literacy mean scale score of female candidates (116.4), similar values to 2019. The pass rate of the female candidates on the literacy component (88.2%) was considerably lower than that of the male candidates (93.4%). For numeracy, the difference was even greater. The numeracy mean scale score of the male candidates (129.0) was significantly higher (effect size 0.57) than that of the female candidates (122.5). The pass rate of the female candidates on the numeracy component (87.3%) was considerably lower than that of the male candidates (96.2 %).

As for previous years, achievement on the literacy test tended to increase with the age of the candidates, but this was less evident for numeracy. For literacy, the youngest group of candidates aged 17–25 (mean scale score 115.9) achieved significantly lower (effect size 0.34) than candidates aged over 25 (118.8). The numeracy mean scale score of candidates aged over 25 was greater than that of those aged 17–25 (125.4 to 123.6). Unlike 2019, the difference was not significant (effect size 0.15).

As for 2017, 2018 and 2019, the mean scale score of international candidates (112.6) for literacy was significantly lower (effect size 0.53) than the mean scale score of other candidates (117.2). For numeracy, unlike in 2019, the mean scale score of international candidates (125.7) was not significantly higher (effect size 0.13) than the mean scale score of other candidates (124.2).

As for 2017, 2018 and 2019, the mean scale score for literacy of candidates for whom English was a first language (117.6) was significantly higher (effect size 0.59) than the mean scale score for literacy of other candidates (112.5). The same was true for numeracy where the mean scale scores were 124.3 and 123.7 respectively. This differs from 2017, 2018 and 2019 when the mean scale scores for numeracy were lower for candidates for whom English was a first language.

As for 2017, 2018 and 2019, for both literacy and numeracy, the mean scale scores of candidates who identified as Aboriginal or Torres Strait Islander were significantly lower (effect size 0.23 and 0.31 respectively) than for other candidates. For literacy, the mean scale scores were 115.1 (similar to 113.8 in 2017, 114.6 in 2018 and 114.3 in 2019) and 117.0 respectively; and for numeracy, 120.7 (greater than 118.0 in 2017, 119.2 in 2018 and 119.1 in 2019) and 124.3 respectively. However, it is worth noting that the pass rates of first-attempt candidates who identified as Aboriginal or Torres Strait Islander were still relatively high at 87% (up from 81% in 2017, 83% in 2018 and 84% in 2020) for literacy and 87% for numeracy (up from 81% in 2020). For literacy, the pass rate of candidates identifying as Aboriginal or Torres Strait Islander was higher than that of international candidates (74%) and candidates for whom English was not a first language (74%). The reverse was true for numeracy. The pass rate of candidates identifying as Aboriginal or Torres Strait Islander was lower than that of international candidates (92%) and candidates for whom English was not a first language (87%).

Residential postcode data were used to place candidates into four main categories: metropolitan, regional, remote and international. Where postcodes could not be matched to an indicator they were categorised as missing or invalid. As for 2017, 2018 and 2019 for both literacy and numeracy, there was little difference in achievement by Australian residential areas (metropolitan, regional and remote). One exception was for literacy, with candidates indicating a remote postcode achieving significantly higher scores than candidates with a regional postcode (120.5 compared to 117.4 with an effect size of 0.33). For literacy, candidates with an international postcode achieved significantly higher scores than candidates with metropolitan postcodes (120.8 compared to 117.5, effect size 0.45). For numeracy, the mean scale score of candidates with international postcodes was significantly higher than for candidates with metropolitan postcodes and also those with remote postcodes (128.0 compared to 123.1 and 123.0, effect sizes 0.42 and 0.40 respectively). It should be noted that in some cases the number of candidates was small; for example, 27 candidates with an international postcode sat the literacy test.

As for previous years, for both literacy and numeracy, the mean scale scores of postgraduate candidates were significantly higher in 2020 than for undergraduate candidates. For literacy (119.9 and 115.3 respectively, effect size 0.55) and for numeracy (127.7 and 122.3 respectively, effect size 0.46). The difference in mean scale scores was approximately 5 scale score points for both components.

In 2020, some Higher Education providers offered 'Pathways' courses for those considering teaching who don't meet the state-based requirements for entry into initial teacher education courses. The mean scale scores of candidates enrolled in Pathways courses was significantly lower than the mean scale scores of undergraduate candidates for both literacy and numeracy. For literacy, the mean scale score of the 88 Pathways candidates (109.4) was above the standard (107) and nearly 6 scale score points below the mean scale score of undergraduate candidates (115.3), effect size 0.75. For numeracy, the mean scale score of the 86 Pathways candidates (115.0) was above the standard (110) but nearly 7 scale score points below the mean scale score of undergraduate candidates (122.3), effect size 0.64.

In 2020, as for 2019, for literacy, the mean scale scores of undergraduate candidates increased with the year of the course, ranging from 114.7 for first-year undergraduates to 116.0 for fourth-year undergraduates. Again, there was no such pattern for numeracy (123.0 for first-year undergraduates, 122.4 for fourth-year undergraduates). For postgraduate candidates, there was no such pattern for literacy or numeracy.

As for previous years, for both literacy and numeracy, the mean scale scores of candidates in the secondary education course category were significantly higher than those of candidates in the other four course categories, with the greatest differences occurring for numeracy. For literacy, there was a 5.7 scale score points difference between the secondary cohort (118.8) and the early years cohort (113.1), and a 3.3 scale score points difference between the primary cohort (116.4) and the early years cohort (113.1).

For numeracy, there was a 7.6 scale score points difference between the secondary cohort (127.3) and the early years cohort (119.7), and a 3.2 scale score points difference between the primary cohort (122.9) and the early years cohort (119.7). The effect sizes for these differences ranged between 0.3 and 0.5.

Table 24 summarises the significant differences in mean scale scores for the eight demographic characteristics.

Table 24: Subgroups showing significantly higher mean scale scores

Characteristic	Literacy	Numeracy
Gender	Males	Males
Age	Above 25 years	None
International	Domestic	None
Language background	English as a first language	None
Indigeneity	Non-Indigenous	Non-Indigenous
Residential location	International higher than metropolitan	International higher than metropolitan and remote
Program type	Postgraduate	Postgraduate
Course category	secondary > primary > early childhood	secondary > primary > early childhood

In addition to comparing cohorts by mean scale scores, Figure 3 to Figure 6 display scale score distributions for first-attempt candidates in 2020. The left panel of each figure shows literacy scale score distributions and the right panel of each figure shows numeracy scale score distributions. The horizontal lines in each figure represent the standard scale score for each component of the test.

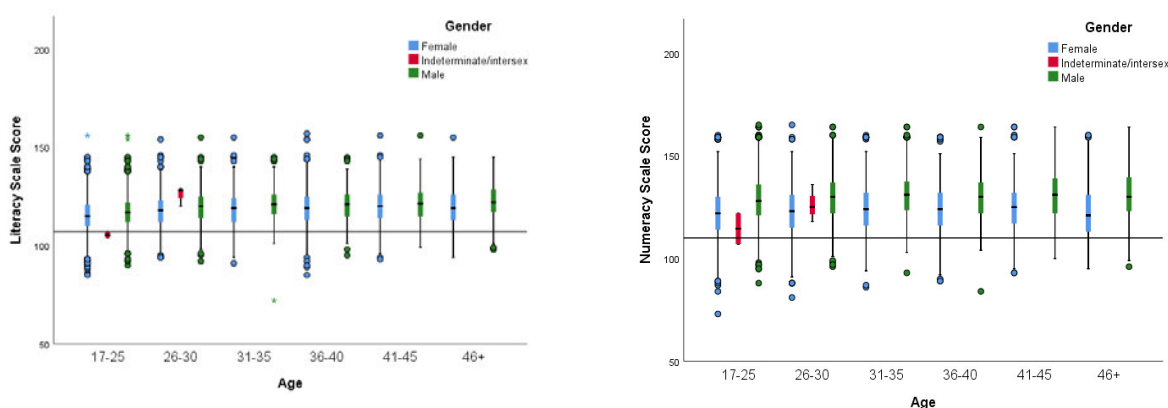


Figure 3: Score distribution by gender and age

Figure 3 shows that, for all age groups, the difference in achievement between male candidates and female candidates is more pronounced for numeracy than for literacy. However, in each age category and for male or female, there are candidates who achieve well above the standard.

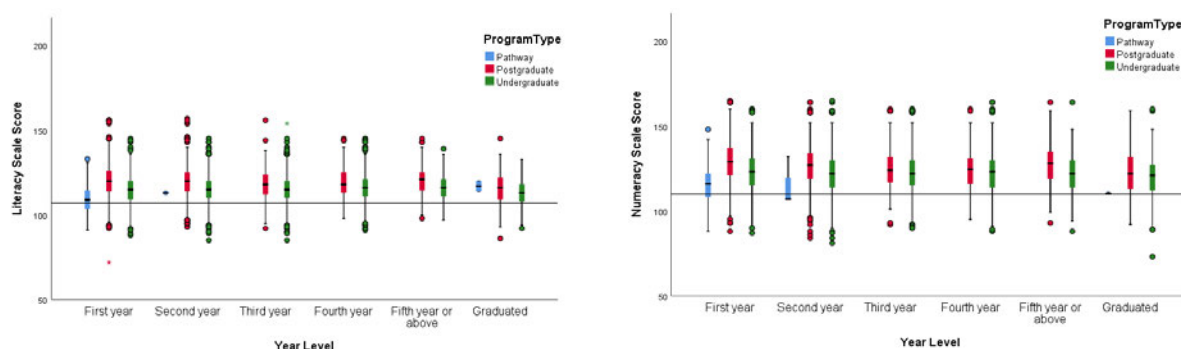


Figure 4: Score distribution by program type and year level

Figure 4 shows that, for all year levels, the difference in achievement between postgraduate candidates and undergraduate candidates is similar for literacy and numeracy, with the achievement of postgraduate candidates higher than that of undergraduate candidates. While the achievement of the Pathways cohort is low for both components, it can be seen that there are a small number of candidates with scores above the standard.

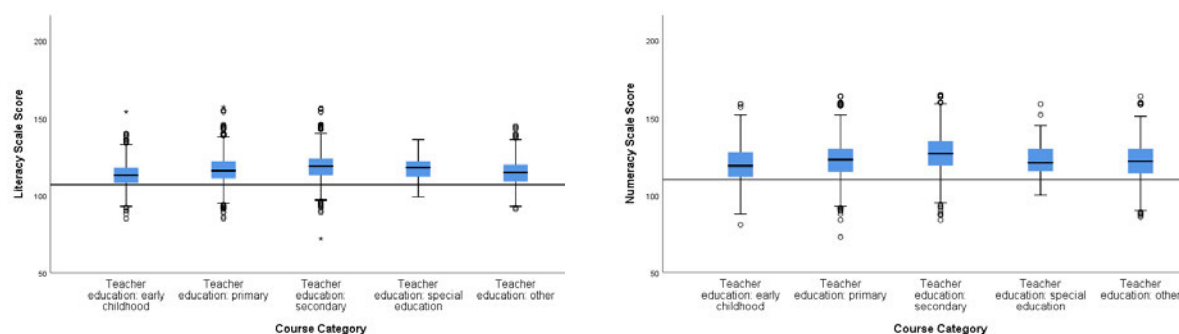


Figure 5: Score distribution by course category

Figure 5 shows that, although candidates in secondary education courses achieve highest in both literacy and numeracy, there are candidates who achieve well above the standard in each of the other courses. For example, for both literacy and numeracy, the achievement of the top 25% of candidates in the early childhood category is broadly equivalent to the top 50% of candidates in the secondary category.

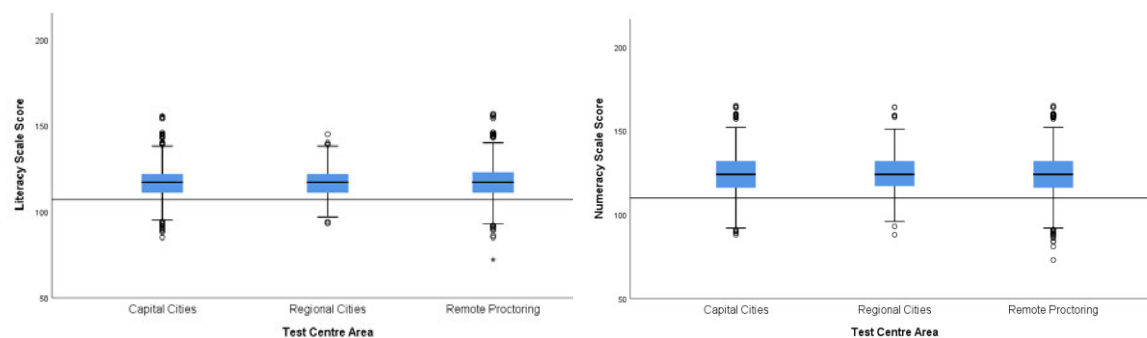


Figure 6: Score distribution by location of testing

Figure 6 shows that for test centres in capital cities and regional cities, and for remote proctoring, for both literacy and numeracy, the distributions are very similar and there are candidates in each category who achieve well above the standard.

3.3 Candidate performance by test centres and remote proctoring

Table 25 shows the performance by test centres and remote proctoring. Compared to 2019, there were some declines in mean scale scores for literacy at most centres with a small increase in the mean scale

score for remote proctoring. In contrast, for numeracy there was an increase in mean scale score for all but one test centre and for remote proctoring.

It can be seen from the last three rows of Table 25 that the performance of candidates using remote proctoring was very similar to the performance of candidates who took tests in capital city test centres and regional city test centres, with less than one scale score point separating the mean scale scores of the three groups for both test components. Pass rates were also very similar.

Table 25: Performance by test centres and remote proctoring

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Test Centre	Adelaide CBD	973	115.5	8.8	83.9	975	122.8	12.4	85.6
	Albury	37	116.6	7.8	89.2	36	124.9	11.3	91.7
	Armidale (NSW)	14	121.1	4.5	100.0	13	126.2	7.8	100.0
	Ballarat	94	114.9	7.2	85.1	80	123.2	11.8	88.8
	Brisbane CBD	1423	117.6	8.1	91.2	1408	124.8	11.2	92.1
	Canberra CBD	249	117.7	8.8	89.6	243	124.3	11.1	90.9
	Darwin	142	112.5	10.5	67.6	154	122.9	12.6	83.1
	Gold Coast	75	118.6	8.5	92.0	78	124.3	10.5	93.6
	Granville (NSW)	153	113.4	8.2	81.0	151	121.0	11.6	82.1
	Hobart	98	122.9	8.4	96.9	95	129.7	11.3	97.9
	Melbourne CBD	844	115.8	8.5	86.3	825	122.4	11.7	85.6
	Newcastle	246	117.4	7.8	92.7	237	126.5	11.1	93.2
	Perth CBD	1476	117.0	7.8	92.5	1444	124.5	10.9	91.0
	Reasonable Adjustments	11	112.3	9.6	81.8	9	NA	NA	NA
	Remote Proctoring	8393	117.1	8.6	89.8	8307	124.2	11.9	89.6
	Sunshine Coast / Maroochydore	62	117.4	8.6	88.7	61	125.2	11.6	95.1
	Sydney CBD	2005	117.2	8.3	90.8	1989	125.2	11.9	90.5
	Townsville	34	117.9	7.6	97.1	34	126.6	11.1	97.1
	Warrnambool	22	115.7	8.3	81.8	22	124.2	10.1	95.5
	Wollongong	160	118.0	7.8	92.5	152	126.2	10.7	92.1
	Capital Cities	7221	116.8	8.4	89.3	7142	124.3	11.7	89.6
	Regional Cities	897	116.7	8.1	89.4	864	124.8	11.2	91.1
	Remote Proctoring	8393	117.1	8.6	89.8	8307	124.2	11.9	89.6

3.4 Candidates who did not achieve the standard after one attempt

Table 26 shows the number and proportion of candidates who did not achieve the test standard in 2020 after one attempt. The proportion of first-attempt candidates who did not achieve the standard on the literacy component was 10.4% (down from 11.3% in 2019). The proportion of first-attempt candidates who did not achieve the standard on the numeracy component was 10.3% (down from 12.3% in 2019). The percentage of first-attempt candidates who did not achieve either standard in 2020 was 4.3% (down from 5.1% in 2019).

Table 26: Number and proportion of first-attempt candidates who did not achieve the standard

	Number	Percentage
Candidates who did not achieve the literacy standard	1720	10.4
Candidates who did not achieve the numeracy standard	1677	10.3
Candidates who did not achieve the literacy and the numeracy standard	663	4.3

3.5 Performance of Resit Candidates

Table 27 shows the performance of candidates who had multiple attempts at the test, overall and by subscale. As expected, the performance of resit candidates was lower than the performance of the majority of candidates who achieved the standard at their first attempt. For example, for the 1487 second-

attempt candidates for literacy in 2020, their overall mean scale score was 107.2 with a pass rate of 57.4% (compared to 116.9 and 89.6% for first-attempt candidates in 2020). For the 1578 second-attempt candidates for numeracy in 2020, their overall mean scale score for numeracy was 110.4 with a pass rate of 55.6% (compared to 124.3 and 89.7% for first-attempt candidates in 2020).

It can be seen from Table 27 that pass rates for literacy declined steadily from the second attempt with a pass rate of 57% to the fourth attempt at 47%. However, the pass rate for the fifth attempt was 61% (33 candidates). For numeracy, the pass rate increased steadily from 56% for the second attempt to 69% for the fifth attempt (49 candidates).

For the literacy subscales, the mean scale score of resit candidates was similar for Reading and Technical Skills of Writing; however, third- and fourth-attempt candidates tended to do relatively better on Technical Skills of Writing than on Reading. For the numeracy subscales, the mean scores of resit candidates for the 'calculator not available' subscale were lower than the mean scores of resit candidates on the other numeracy subscales for the second and third attempts. Measurement and Geometry was the subscale with the lowest mean score for the fourth and fifth attempts, suggesting these are the numeracy skills where resit candidates need most support.

Table 27: Resit candidate performance overall and by subscale

Component	Whole test and subscale	Second Attempt			Third Attempt			Fourth Attempt			Fifth Attempt		
		(Resit 1)			(Resit 2)			(Resit 3)			(Resit 4)		
		N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Literacy	Overall	1487	107.2	57.4	546	106.7	53.3	171	106.7	46.8	33	107.5	60.6
	Reading		107.0			106.0			105.9			107.3	
	Technical Skills of Writing		107.9			108.0			108.3			107.8	
Numeracy	Overall	1578	110.4	55.6	673	110.9	57.4	212	112.6	62.3	49	114.9	69.4
	Number & Algebra		109.7			110.8			113.1			114.6	
	Measurement & Geometry		110.3			110.3			111.3			113.8	
	Statistics & Probability		111.8			111.8			112.7			115.5	
	Calculator available		111.0			111.3			112.4			114.7	
	Calculator not available		108.3			109.4			113.2			115.9	

It can be seen from Table 28 that for both literacy and numeracy, despite the availability of more practice materials in 2019, there is very little difference in the mean scale score change between first and second attempts regardless of the time taken between the attempts.

Table 28: Change in scale score between first and second attempts by time

Component	Mean score change (scale score points)				
	Less than 2 months	From 2 to <4 months	From 4 to <6 months	More than 6 months	All
Literacy	4.2	4.0	4.1	4.5	4.2
Numeracy	4.9	5.1	4.8	5.3	5.1

Overall, each second-attempt cohort in 2020 improved their scale scores (4.2 points for literacy and 5.1 points for numeracy). However, after taking performance (Band level *after* second attempt) into account, it can be seen from Table 29 that the change in scale scores was not uniform. The mean score change of the least able cohort (those with second-attempt scores below Band 1) was –6.2 scale score points for literacy and –2.3 scale score points for numeracy. That is, the mean scale score of the candidates below Band 1 was lower at the second attempt than it was at the first attempt. In general, the higher the performance of the second-attempt candidates, the more they were able to improve their scores between their first and second attempts.

Table 29: Change in scale score between first and second attempts by performance (Band)

Component	Mean score change (scale score points)				
	Below Band 1	Band 1	Band 2	Band 3 and Above	All
Literacy	–6.2	1.1	6.8	21.6	4.2
Numeracy	–2.3	2.0	8.0	23.0	5.1

The findings above suggest that it is more likely that the change in score between first and second attempts is explained more by performance than it is by the time between testing.

Additional analysis investigated the impact of resit candidates on pass rates. Table 30 categorises candidates by their most recent result by the end of 2020. Table 30 shows that for literacy, the pass rates in 2020 were 92.8% for no-resit candidates (first-attempt) and ranged from 49% to 67% for resit candidates. For numeracy, the pass rates in 2020 were similar to literacy; that is, 92.8% for no-resit candidates and ranging from 63% to 69% for resit candidates. Overall, in 2020 the performance of resit candidates ‘reduced’ the pass rate by 3.3% in literacy (from 92.8% to 89.5%) and by 3.5% in numeracy (from 92.8% to 89.3%), both less than in 2019.

Table 30: Candidate performance by number of test sittings in 2016–20

Component	Year	Number of Test Sittings	Number of Unique Candidates	Standard Achieved	Standard Not Achieved	Pass Rate
Literacy	2016	1 (no resits)	12350	12210	140	98.9
		2	254	230	24	90.6
		3	20	19	1	95.0
		All	12624	12459	165	98.7
	2017	1 (no resits)	21223	20861	362	98.3
		2	902	796	106	88.2
		3	170	119	51	70.0
		4	25	14	11	56.0
		All	22320	21790	530	97.6
	2018	1 (no resits)	19826	19300	526	97.3
		2	1250	1038	212	83.0
		3	430	298	132	69.3
		4	116	52	64	44.8
		5	12	3	9	25.0
		All	21634	20691	943	95.6
	2019	1 (no resits)	18999	18333	666	96.5
		2	1432	1129	303	78.8
		3	568	353	215	62.1
		4	176	91	85	51.7
		5	36	16	20	44.4
		7	1	0	1	0.0

	2020	All	21212	19922	1290	93.9
		1 (no resits)	15933	14790	1143	92.8
		2	1280	853	427	66.6
		3	511	291	220	56.9
		4	165	80	85	48.5
		5	33	20	13	60.6
		All	17922	16034	1888	89.5
Numeracy	2016	1 (no resits)	12244	12082	162	98.7
		2	263	224	39	85.2
		3	27	16	11	59.3
		4	2	2	0	100.0
		All	12536	12324	212	98.3
	2017	1 (no resits)	21482	21108	374	98.3
		2	809	683	126	84.4
		3	193	141	52	73.1
		4	28	17	11	60.7
		All	22512	21949	563	97.5
	2018	1 (no resits)	19782	19225	557	97.2
		2	1165	903	262	77.5
		3	398	242	156	60.8
		4	122	55	67	45.1
		5	27	10	17	37.0
		6	1	1	0	100.0
		All	21495	20436	1059	95.1
	2019	1 (no resits)	18884	18160	724	96.2
		2	1339	1014	325	75.7
		3	584	384	200	65.8
		4	197	116	81	58.9
		5	41	19	22	46.3
		All	21045	19693	1352	93.6
	2020	1 (no resits)	15777	14636	1141	92.8
		2	1339	878	461	65.6
		3	617	386	231	62.6
		4	201	132	69	65.7
		5	49	34	15	69.4
		All	17983	16066	1917	89.3

It is pleasing to note, however, that the mean scale score of second-, third- and fourth-attempt cohorts showed significant improvement in 2020 for several strands compared to 2019. This was more evident in the numeracy component than the literacy component as shown in Table 31.

Table 31: Improved achievement of 2020 resit cohorts by domain and strand

Domain	Attempt	Strand	2019 mean	2019 N	2020 mean	2020 N	Increase
Literacy	2	TSW	106.5	2044	107.9	1487	1.4
Literacy	3	TSW	106.5	748	108.0	546	1.5
Numeracy	2	Overall	109.1	2058	110.4	1578	1.3
Numeracy	2	Number and Algebra	108.1	2058	109.7	1578	1.6
Numeracy	2	Measurement and Geometry	109.3	2058	110.3	1578	1.0
Numeracy	2	Statistics and Probability	110.8	2058	111.8	1578	1.0
Numeracy	2	Calculator available	109.7	2058	111.0	1578	1.3
Numeracy	2	Calculator not available	106.8	2058	108.3	1578	1.5
Numeracy	3	Overall	109.0	776	110.9	673	1.8
Numeracy	3	Number and Algebra	108.3	776	110.8	673	2.5
Numeracy	3	Measurement and Geometry	109.2	776	110.3	673	1.0
Numeracy	3	Statistics and Probability	110.3	776	111.8	673	1.5
Numeracy	3	Calculator available	109.6	776	111.3	673	1.7
Numeracy	3	Calculator not available	106.9	776	109.4	673	2.5
Numeracy	4	Overall	110.3	231	112.6	212	2.3
Numeracy	4	Number and Algebra	109.9	231	113.1	212	3.2
Numeracy	4	Statistics and Probability	111.0	231	112.7	212	1.7
Numeracy	4	Calculator available	110.5	231	112.4	212	1.9
Numeracy	4	Calculator not available	109.6	231	113.2	212	3.6
Numeracy	5	Overall	110.6	41	114.9	49	4.3
Numeracy	5	Statistics and Probability	109.7	41	115.5	49	5.7
Numeracy	5	Calculator available	110.3	41	114.7	49	4.4

For literacy, the mean scale score of the second-attempt cohort showed improvement of 1.4 scale score points for the Technical Skills of Writing strand from 2019 to 2020, exceeding the literacy standard of 107 scale score points.

For literacy, the mean scale score of the third-attempt cohort showed improvement of 1.5 scale score points for the Technical Skills of Writing strand from 2019 to 2020, exceeding the literacy standard of 107 scale points.

For numeracy, the fourth-attempt cohort showed improvement of between 1.7 and 3.6 scale score points from 2019 to 2020, exceeding the numeracy standard of 110 scale score points. The largest increase was for the 'calculator not available' strand.

For numeracy, the second- and third- attempt cohorts also showed improvement in mean scale scores for the 'calculator not available' strand of 1.5 and 2.5 scale score points respectively.

4. CANDIDATE PERFORMANCE BY TEST WINDOWS

This section presents candidate performance by test window. The performance of resit candidates is also described by test window.

4.1 Distributions of Candidate Scale Scores by Subscale and Test Window

Table 32 shows the performance of all candidates (first-attempt and resits) who sat the test for each test window in 2020. In 2020, the overall mean scale scores for literacy and numeracy remained quite constant across test windows 1, 3 and 4; they were lower for test window 2, however, when the number of candidates was substantially less.

There was a similar pattern across the test windows in relation to subscale mean scale scores.

Table 32: Candidate performance by test window, overall and by subscale

Component	Test Window	Whole Test and Subscale	N	Mean	S.D.	Pass Rate
Literacy	TW1	Overall	5481	115.7	8.8	84.8
		Reading		115.6	9.2	
		Technical Skills of Writing		115.9	10.4	
	TW2	Overall	559	113.0	8.7	76.4
		Reading		112.9	9.2	
		Technical Skills of Writing		113.4	9.7	
	TW3	Overall	6448	116.1	8.9	86.2
		Reading		115.9	9.3	
		Technical Skills of Writing		116.4	10.5	
	TW4	Overall	6260	115.7	8.6	86.3
		Reading		115.9	9.1	
		Technical Skills of Writing		115.5	9.7	
Numeracy	TW1	Overall	5589	122.0	12.1	84.0
		Number & Algebra		122.5	13.7	
		Measurement & Geometry		120.5	12.0	
		Statistics & Probability		121.7	12.1	
		Calculator available		122.2	12.0	
		Calculator not available		120.9	15.1	
	TW2	Overall	589	118.6	11.7	76.7
		Number & Algebra		119.3	13.5	
		Measurement & Geometry		117.4	11.9	
		Statistics & Probability		118.2	11.7	
		Calculator available		118.8	11.3	
		Calculator not available		117.6	16.4	
	TW3	Overall	6390	123.0	12.2	86.4
		Number & Algebra		123.7	13.7	
		Measurement & Geometry		121.4	12.2	
		Statistics & Probability		122.4	12.2	
		Calculator available		123.0	12.0	
		Calculator not available		122.4	15.4	
	TW4	Overall	6257	122.7	12.3	86.2
		Number & Algebra		123.2	13.9	
		Measurement & Geometry		121.5	12.0	
		Statistics & Probability		122.3	12.1	
		Calculator available		123.0	12.0	
		Calculator not available		121.4	15.5	

Appendix 4 provides a detailed analysis of candidate performance by demographic characteristics and test windows. Candidate performance of any subgroup with a sample size less than 10 was not reported.

Appendix 5 provides a detailed analysis of performance by test centres and remote proctoring by test window. The distributions of candidate performance within a subgroup were similar across test windows.

Table 33 shows the proportion of candidates by test window who did not achieve the standard in 2020 after one or more attempts. The proportions of candidates for literacy, numeracy and both were greatest in test window 2.

Table 33: Number and proportion of candidates who did not achieve the standard by test window

Test Window	Component	Number	% of Candidates
TW1	Literacy	832	15.2
	Numeracy	893	16.0
	Both	298	6.6
TW2	Literacy	132	23.6
	Numeracy	137	23.3
	Both	36	9.2
TW3	Literacy	890	13.8
	Numeracy	866	13.6
	Both	287	5.4
TW4	Literacy	859	13.7
	Numeracy	863	13.8
	Both	279	5.4

4.2 Performance of Resit Candidates by Test Window

Table 34 and Table 35 show the performance of resit candidates overall, by subscale and by test attempt for each test window. In each test window, the overall mean scale scores of resit candidates who had a second attempt (resit 1) were at or slightly above the standard for literacy (107) and numeracy (110). This is an improvement on 2019 where most mean scale scores were close to but below the standard for both literacy and numeracy.

For literacy, the candidates who sat the test for the third time (resit 2) had similar but slightly lower overall mean scores to those candidates who sat the test for the second time, as for 2019. The pass rates of the third-attempt (resit 2) candidates also tended to be lower than the second-attempt (resit 1) candidates.

For numeracy, the overall mean scores of candidates who sat the numeracy component for the third time were the same or slightly higher than the overall mean scales scores of those candidates who sat the test for the second time. However, the pass rates tended to be lower for those candidates who sat the numeracy component for the third time.

Table 34: Resit candidate performance by test window, overall and by subscale for literacy

Component	Test Window	Whole Test and Subscale	Second Attempt (Resit 1)			Third Attempt (Resit 2)			Fourth Attempt (Resit 3)			Fifth Attempt (Resit 4)		
			N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Literacy	TW1	Overall	450	107.1	55.1	130	106.8	50.0	43	106.7	37.2	3	-	-
		Reading		106.8			105.9			105.9			-	
		Technical Skills of Writing		107.8			108.9			108.5			-	
	TW2	Overall	79	106.5	54.4	77	105.9	49.4	21	104.5	28.6	4	-	-
		Reading		106.3			105.4			102.9			-	
		Technical Skills of Writing		107.2			106.7			108.2			-	
	TW3	Overall	469	107.8	61.4	165	107.1	58.2	59	107.8	57.6	10	107.2	70.0
		Reading		107.5			106.3			107.1			108.0	
		Technical Skills of Writing		108.7			108.9			109.4			105.0	
	TW4	Overall	489	107.0	56.0	174	106.5	52.9	48	106.2	50.0	16	107.9	56.3
		Reading		106.9			106.2			105.9			107.1	
		Technical Skills of Writing		107.3			107.0			107.0			109.4	

Table 35: Resit candidate performance by test window, overall and by subscale for numeracy

Component	Test Window	Whole Test and Subscale	Second Attempt (Resit 1)			Third Attempt (Resit 2)			Fourth Attempt (Resit 3)			Fifth Attempt (Resit 4)		
			N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Numeracy	TW1	Overall	525	109.6	50.1	221	110.6	53.8	48	111.7	56.3	17	113.6	70.6
		Number & Algebra		108.6			110.7			111.3			114.8	
		Measurement & Geometry		109.7			109.7			111.1			112.4	
		Statistics & Probability		111.3			111.5			112.5			113.0	
		Calculator available		110.2			110.9			111.9			112.2	
		Calculator not available		107.4			109.1			111.1			118.6	
	TW2	Overall	92	110.0	52.2	71	110.5	50.7	39	112.7	66.7	5	-	-
		Number & Algebra		109.6			110.4			113.8			-	
		Measurement & Geometry		109.6			110.7			111.4			-	
		Statistics & Probability		111.1			110.6			111.7			-	
		Calculator available		110.4			110.8			112.1			-	
		Calculator not available		108.6			108.7			115.7			-	
	TW3	Overall	464	111.1	58.8	184	111.1	61.4	70	113.8	65.7	13	121.5	76.9
		Number & Algebra		110.5			111.2			114.7			120.5	
		Measurement & Geometry		110.8			109.9			112.2			119.8	
		Statistics & Probability		112.6			112.5			113.5			120.4	
		Calculator available		111.7			111.5			113.4			122.0	
		Calculator not available		108.9			110.1			114.6			120.8	
	TW4	Overall	497	110.7	59.2	197	111.1	59.9	55	111.8	60.0	14	110.7	57.1
		Number & Algebra		110.1			110.6			112.1			109.6	
		Measurement & Geometry		110.6			111.1			110.2			110.4	
		Statistics & Probability		111.8			112.0			112.4			112.9	
		Calculator available		111.3			111.7			112.0			111.7	
		Calculator not available		108.6			109.3			111.6			107.4	

5. PHASE 6 TRIAL ITEM ANALYSIS

5.1 In-test trialling

Following review by the Expert Groups, 109 literacy items and 86 numeracy items were trialled within the live tests. These items were placed in small clusters (5-item clusters for literacy, and 4-item 'calculator available' clusters and a 1-item 'calculator not available' cluster for numeracy). Candidates were unaware of the location of these trial items. The trial items did not contribute to a candidate's score. The items were trialled in multiple test windows until sufficient candidates had attempted them. In this way, robust trial item estimates were obtained to enable selection of new, balanced clusters for refreshment of the tests in test window 3 and test window 4 in 2020.

5.2 Trial item analysis

Of the 109 literacy items, 103 had acceptable psychometric properties. Of 86 numeracy items, 82 had acceptable properties. Table 36 shows that the acceptable Phase 6 trial items were well-targeted by difficulty, with most items achievable by candidates in Band 2: At and above the standard, and in Band 3: Clearly above the standard. A small number are achievable by candidates above Band 3 and in Band 1: Below the standard, as required by the test construct. A number of Phase 6 trial items (17 literacy, 1 numeracy) were too easy to be of any use in refreshing the test.

Table 36: Distribution of Phase 6 trial items by Band

Achievable by candidates ...	Number of literacy items	Number of numeracy items
well above Band 3	0	2
above Band 3	2	1
in Band 3: Clearly above the standard	22	23
in Band 2: At and above the standard	37	40
in Band 1: Below the standard	25	15
below Band 1	17	1
Total	103	82

5.3 Differential item functioning

During the item development and revision phase, avoiding items that might favour one subgroup of candidates over another is attempted. Despite this, it is normal for a proportion of items to show differential item functioning (DIF).

DIF analysis was performed on all trial items. Only analysis where subgroup size exceeds 50 candidates can be reported reliably. On many occasions, no obvious content or context bias is observable. Investigating reasons for a particular item showing DIF for a particular group involves looking for an explanatory connection between actual characteristics of the item and assumed or posited characteristics of the group.

It is often not possible to withhold all items showing DIF from the live tests, so the approach is to attempt to 'balance' the tests accordingly and thereby minimise the likelihood of any test bias. Selected items with DIF are spread across the clusters. No candidate attempts all clusters, so no candidate is required to attempt all items showing DIF.

Table 37 shows the number of Phase 6 items showing significant differential item functioning. There were an insufficient number (<50) of candidates to reliably report DIF for Indigenous candidates, international candidates, English not as a first language candidates and regional and remote candidates. The data from test window 1, 2021, will be added to the DIF analysis before items are selected to refresh the test for test window 3 in 2021.

For both literacy and numeracy, the DIF was reasonably ‘well-balanced’ for most variables except for Age where there were more items favouring candidates aged 26+ years for literacy and more items favouring candidates 17–25 years for numeracy. For literacy, there were more items favouring male than female candidates.

Items showing DIF are investigated for unfair content and where this is found to exist the items are not selected. Usually, this is not the case and the DIF is performance related; that is, the favoured subgroup is simply better at the skills being assessed for a variety of reasons. To minimise differential test functioning, DIF ‘cancelling’ methodology is applied at the cluster formation stage. That is, items showing DIF are paired with items showing DIF in the opposite direction. In this way, clusters are well-balanced and the tests from which the clusters are created are fair.

Table 37: Differential item functioning

Variable	Favours	Number of literacy items	Number of numeracy items
Age	17–25 years	3	4
	26+ years	6	1
Course Category	Early childhood & primary	4	2
	Secondary	3	2
Gender	Female	2	4
	Male	5	4
Program Type	Postgraduate	5	1
	Undergraduate	5	0

The detailed DIF analysis may be found in Appendix 6.

6. PHASE 7 TEST DEVELOPMENT

During 2020, 120 Phase 7 literacy items (89 Reading and 31 Technical Skills of Writing) and 108 Phase 7 numeracy items mapped against the Assessment Framework were developed. The items were reviewed by the Experts Group in February 2021 and are to be revised based upon reviewers' feedback. A small proportion will be retired. A selection of at least 60 literacy items and at least 60 numeracy items will be in-test trialled in test windows 3 and 4 of 2021 and test window 1 of 2022. A selection of these will be used to refresh the test in 2022.

7. CONCLUSION

Despite the significant challenges presented by COVID-19 in 2020, the test was successfully administered in four test windows in all Australian states and territories in 18 metropolitan and regional testing centres and by remote proctoring to 19 923 candidates. Another set of new items was successfully trialled enabling the test to be refreshed.

Item difficulty and targeting of the new set of trial items against the framework was such that equivalent test clusters can be created. Differential item functioning was found to be manageable, ensuring that unbiased clusters can be created in order to refresh the test in mid-2021.

Of the candidates who first registered in 2020, by the end of the year, 91.8% had achieved the literacy standard and 91.9% had achieved the numeracy standard. Over the five years of testing, 94.5% of candidates had achieved the literacy standard and 93.9% of candidates had achieved the numeracy standard. Of the 94 451 candidates presenting for the test in the five year period 2016–2020, 92.5% had achieved both standards, thereby meeting the requirements. Candidates were making effective use of the opportunity to improve their skills and resit the tests with 97.8% of the 2016 cohort achieving the literacy standard and 97.0% achieving the numeracy standard by the end of 2020.

8. APPENDICES

Appendix 1: Proportion of candidates by test centre and by attempt

Table 38 shows the number and proportion of candidates participating at each test centre and by remote proctoring. In 2020, slightly more than half of first-attempt candidates (compared to 22% in 2019) sat the test by remote proctoring. Attendances at many test centres were greatly reduced due to the impact of COVID-19. For example, the Melbourne CBD test centre accounted for 5% of all first attempt candidates in 2020, compared with 21% in 2019.

Table 38: Number and proportion of candidates who participated by test centre

Test Centre	First Attempt				Second Attempt				Third Attempt				Fourth Attempt				Fifth Attempt			
	Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Adelaide CBD	973	5.9	975	6.0	132	8.9	150	9.5	44	8.1	56	8.3	11	6.4	10	4.7	2	6.1	0	-
Albury	37	0.2	36	0.2	0	-	0	-	0	-	1	0.1	0	-	0	-	0	-	0	-
Armidale (NSW)	14	0.1	13	0.1	2	0.1	3	0.2	1	0.2	1	0.1	0	-	0	-	0	-	0	-
Ballarat	94	0.6	80	0.5	11	0.7	16	1.0	4	0.7	5	0.7	0	-	0	-	0	-	0	-
Brisbane CBD	1423	8.6	1408	8.6	97	6.5	94	6.0	22	4.0	32	4.8	5	2.9	3	1.4	0	-	1	2.0
Canberra CBD	249	1.5	243	1.5	19	1.3	14	0.9	2	0.4	4	0.6	1	0.6	2	0.9	0	-	0	-
Darwin	142	0.9	154	0.9	16	1.1	10	0.6	0	-	1	0.1	0	-	0	-	0	-	1	2.0
Gold Coast	75	0.5	78	0.5	9	0.6	7	0.4	2	0.4	1	0.1	0	-	0	-	0	-	0	-
Granville (NSW)	153	0.9	151	0.9	21	1.4	16	1.0	8	1.5	6	0.9	0	-	0	-	0	-	0	-
Hobart	98	0.6	95	0.6	1	0.1	1	0.1	0	-	0	-	1	0.6	1	0.5	0	-	0	-
Melbourne CBD	844	5.1	825	5.1	82	5.5	103	6.5	22	4.0	57	8.5	15	8.8	15	7.1	1	3.0	8	16.3
Newcastle	246	1.5	237	1.5	6	0.4	13	0.8	3	0.5	6	0.9	0	-	1	0.5	1	3.0	0	-
Perth CBD	1476	8.9	1444	8.9	62	4.2	85	5.4	13	2.4	28	4.2	0	-	5	2.4	0	-	0	-
Reasonable Adjustments	11	0.1	9	0.1	6	0.4	7	0.4	6	1.1	6	0.9	3	1.8	4	1.9	0	-	0	-
Remote Proctoring	8393	50.8	8307	50.9	863	58.0	882	55.9	372	68.1	407	60.5	116	67.8	157	74.1	24	72.7	35	71.4
Sunshine Coast / Maroochydore	62	0.4	61	0.4	3	0.2	3	0.2	2	0.4	6	0.9	0	-	0	-	0	-	0	-
Sydney CBD	2005	12.1	1989	12.2	148	10.0	156	9.9	44	8.1	51	7.6	17	9.9	13	6.1	5	15.2	4	8.2
Townsville	34	0.2	34	0.2	0	-	4	0.3	0	-	1	0.1	2	1.2	1	0.5	0	-	0	-
Warrnambool	22	0.1	22	0.1	1	0.1	1	0.1	0	-	0	-	0	-	0	-	0	-	0	-
Wollongong	160	1.0	152	0.9	8	0.5	13	0.8	1	0.2	4	0.6	0	-	0	-	0	-	0	-
Total	16511	100	16313	100	1487	100	1578	100	546	100	673	100	171	100	212	100	33	100	49	100

Appendix 2: Proportion of candidates by test centre and by test window

Table 39 and Table 40 show the number and proportion of candidates participating in each test centre in test windows 1–4 for literacy and for numeracy respectively. It can be seen that some test centres in some locations were not used for some test windows. No test centres were used for test window 2.

Outside the capital cities, the only regional test centre with a total of more than 200 candidates was Newcastle for each of literacy and numeracy.

Table 39: Number of candidates in test centres by test windows – literacy

Test Centre	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Adelaide CBD	387	7.1	0	-	431	6.7	344	5.5
Albury	37	0.7	0	-	0	-	0	-
Armidale (NSW)	17	0.3	0	-	0	-	0	-
Ballarat	109	2.0	0	-	0	-	0	-
Brisbane CBD	670	12.2	0	-	544	8.4	333	5.3
Canberra CBD	104	1.9	0	-	75	1.2	92	1.5
Darwin	50	0.9	0	-	53	0.8	55	0.9
Gold Coast	61	1.1	0	-	0	-	25	0.4
Granville (NSW)	182	3.3	0	-	0	-	0	-
Hobart	70	1.3	0	-	10	0.2	20	0.3
Melbourne CBD	964	17.6	0	-	0	-	0	-
Newcastle	207	3.8	0	-	0	-	49	0.8
Perth CBD	480	8.8	0	-	510	7.9	561	9.0
Reasonable Adjustments	6	0.1	0	-	10	0.2	10	0.2
Remote Proctoring	1152	21.0	559	100.0	4028	62.5	4029	64.4
Sunshine Coast / Maroochydore	40	0.7	0	-	0	-	27	0.4
Sydney CBD	756	13.8	0	-	787	12.2	676	10.8
Townsville	36	0.7	0	-	0	-	0	-
Warrnambool	23	0.4	0	-	0	-	0	-
Wollongong	130	2.4	0	-	0	-	39	0.6
Total	5481	100	559	100	6448	100	6260	100

Table 40: Number of candidates in test centres by test windows – numeracy

Test Centre	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Adelaide CBD	405	7.2	0	-	447	7.0	339	5.4
Albury	37	0.7	0	-	0	-	0	-
Armidale (NSW)	17	0.3	0	-	0	-	0	-
Ballarat	101	1.8	0	-	0	-	0	-
Brisbane CBD	673	12.0	0	-	528	8.3	337	5.4
Canberra CBD	106	1.9	0	-	78	1.2	79	1.3
Darwin	54	1.0	0	-	48	0.8	64	1.0
Gold Coast	62	1.1	0	-	0	-	24	0.4
Granville (NSW)	173	3.1	0	-	0	-	0	-
Hobart	70	1.3	0	-	10	0.2	17	0.3
Melbourne CBD	1008	18.0	0	-	0	-	0	-
Newcastle	208	3.7	0	-	0	-	49	0.8
Perth CBD	478	8.6	0	-	527	8.2	557	8.9
Reasonable Adjustments	9	0.2	0	-	13	0.2	4	0.1
Remote Proctoring	1187	21.2	589	100.0	3975	62.2	4037	64.5
Sunshine Coast / Maroochydore	38	0.7	0	-	0	-	32	0.5
Sydney CBD	772	13.8	0	-	764	12.0	677	10.8
Townsville	40	0.7	0	-	0	-	0	-
Warrnambool	23	0.4	0	-	0	-	0	-
Wollongong	128	2.3	0	-	0	-	41	0.7
Total	5589	100	589	100	6390	100	6257	100

Appendix 3: Score Frequency Distribution

Table 41: Literacy score frequency distribution of first-attempt candidates

Scale Score	Frequency	Percentile
47	1	0.0
72	1	0.0
85	2	0.0
86	1	0.0
88	1	0.0
89	3	0.1
90	4	0.1
91	4	0.1
92	10	0.2
93	11	0.2
94	17	0.3
95	16	0.4
96	30	0.6
97	48	0.9
98	55	1.2
99	80	1.7
100	89	2.3
101	134	3.1
102	142	3.9
103	207	5.2
104	225	6.5
105	322	8.5
106	317	10.4
107	309	12.3
108	519	15.4
109	545	18.7
110	560	22.1
111	609	25.8
112	712	30.1
113	717	34.5
114	799	39.3
115	766	43.9
116	730	48.4
117	790	53.2
118	753	57.7
119	843	62.8
120	744	67.3
121	704	71.6
122	559	75.0
123	731	79.4
124	476	82.3
125	460	85.1
126	450	87.8
127	273	89.4
128	410	91.9
129	176	93.0
130	232	94.4
131	211	95.7
132	76	96.1
133	171	97.2
134	70	97.6
135	46	97.9
136	126	98.6
137	32	98.8
138	32	99.0
139	52	99.3

Standard in 2017 TW3–4, 2018 to 2020

140	35	99.6
143	16	99.7
144	17	99.8
145	22	99.9
146	4	99.9
154	4	99.9
155	3	100.0
156	6	100.0
157	1	100.0

Table 42: Numeracy score frequency distribution of first-attempt candidates

Scale Score	Frequency	Percentile
73	1	0.0
81	1	0.0
84	2	0.0
86	1	0.0
87	2	0.0
88	6	0.1
89	4	0.1
90	5	0.1
91	6	0.2
92	8	0.2
93	11	0.3
94	11	0.4
95	26	0.5
96	22	0.6
97	44	0.9
98	34	1.1
99	46	1.4
100	61	1.8
101	84	2.3
102	90	2.9
103	94	3.4
104	115	4.1
105	127	4.9
106	180	6.0
107	186	7.2
108	256	8.7
109	254	10.3
110	277	12.0
111	289	13.7
112	309	15.6
113	397	18.1
114	402	20.5
115	484	23.5
116	431	26.2
117	469	29.0
118	493	32.0
119	463	34.9
120	525	38.1
121	558	41.5
122	430	44.2
123	604	47.9
124	602	51.6
125	548	54.9
126	576	58.4
127	492	61.5
128	471	64.3

Standard in 2017 TW3–4, 2018 to 2020

129	497	67.4
130	594	71.0
131	406	73.5
132	508	76.6
133	344	78.7
134	319	80.7
135	383	83.1
136	415	85.6
137	372	87.9
138	109	88.5
139	366	90.8
140	101	91.4
141	252	93.0
142	175	94.0
143	168	95.1
144	42	95.3
145	162	96.3
146	13	96.4
147	87	96.9
148	194	98.1
149	25	98.3
150	2	98.3
151	80	98.8
152	31	99.0
157	2	99.0
158	28	99.1
159	108	99.8
160	16	99.9
164	15	100.0
165	2	100.0

Table 43 shows the percentage of candidates who sat the test in 2020 in each of the three bands for both literacy and numeracy. For literacy, 59% of the candidates who registered in 2020 and sat the literacy component in 2020 were located in Band 2: At or above the standard, while approximately 33% were located in Band 3: Well above the standard or above Band 3.

For numeracy, 42% were located in Band 2: At or above the standard, while 52% were located in Band 3: Well above the standard or above Band 3.

Table 43: Candidates attempting the test in 2020 by Band achievement

Component	Year of Registration	No. of Unique Candidates	Below Band 1 (%)	Band 1 (%)	Band 2 (%)	Band 3 (%)	Above Band 3 (%)
Literacy	2020	16511	0.1	8.0	59.2	30.3	2.4
	2020 plus the 2016–20 resitters	17922	0.1	10.4	59.3	28.0	2.2
Numeracy	2020	16313	0.5	7.6	39.6	40.1	12.1
	2020 plus the 2016–20 resitters	17983	0.6	10.1	41.5	36.8	11.1

The distribution of candidate scale scores across the bands in 2020 was similar to that in 2019 for both literacy and numeracy.

Appendix 4: Performance by Demographic Characteristics and Test Windows

Tables 44, 45, 46 and 47 show performance by demographic characteristics for each test window. In general, the overall findings in Section 3: Candidate Performance are also true for each test window.

With a relatively small number of candidates allowed to participate in test window 2, there were some changes in 2020. There was little variation between subgroup numbers between test windows.

Undergraduate candidates in their first year were more likely to attempt the test in test window 4, whereas the reverse was true for undergraduate candidates in their fourth year who were more likely to attempt the test in test window 1.

Postgraduate candidates in their first year were most likely to attempt the test in test windows 1, 3 and 4. However, postgraduate candidates in their second year were more likely to attempt the test in test window 1.

Table 44: Performance by demographic characteristics in test window 1

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4107	115.1	8.8	83.2	4242	120.2	11.6	81.4
	Male	1370	117.5	8.6	89.9	1343	127.6	11.9	92.4
	Indeterminate/intersex	4	-	-	-	4	-	-	-
Age	17–25	3568	114.9	8.1	84.7	3642	121.6	11.7	84.5
	26–30	834	116.7	9.5	83.3	853	122.3	12.5	81.7
	31–35	402	117.2	9.2	86.1	392	124.1	13.3	86.0
	36–40	315	117.3	9.8	87.6	317	123.5	12.6	87.1
	41–45	194	119.0	9.8	87.1	205	122.4	13.3	82.4
	46+	168	118.4	12.4	83.3	180	122.3	13.9	77.8
International Students	No	5186	116.0	8.7	85.9	5352	122.0	12.1	84.0
	Yes	295	111.3	8.8	65.1	237	122.6	12.9	84.4
English as a First Language	Yes	4774	116.5	8.6	87.8	4943	122.2	12.0	84.9
	No	707	110.7	8.8	64.5	646	120.3	13.2	76.9
Indigenous	No	5260	115.7	8.8	84.9	5363	122.1	12.1	84.2
	Yes	101	112.5	8.3	75.2	109	116.6	11.1	70.6
	Not disclosed	120	116.7	8.3	90.0	117	123.8	11.7	88.0
Residential Area	Metropolitan areas	4366	115.5	8.8	84.5	4458	121.8	12.1	83.4
	Provincial areas	1038	116.5	8.8	86.1	1061	123.0	12.2	86.6
	Remote areas	42	115.7	9.5	81.0	41	121.8	13.3	78.0
	International	23	119.2	9.7	91.3	21	128.1	14.8	85.7
	Invalid or Missing	12	114.0	7.7	83.3	8	-	-	-
Program Type	Undergraduate	3629	114.2	7.9	82.8	3701	120.4	11.4	82.1
	Postgraduate	1844	118.7	9.6	89.0	1874	125.3	12.8	87.9
	Pathway	8	-	-	-	14	113.1	9.8	57.1
Program Type by Year Level	Undergraduate first year	173	114.1	8.9	82.1	177	120.1	12.6	81.4
	Undergraduate second year	701	114.2	8.0	82.0	703	121.9	11.3	86.1
	Undergraduate third year	1165	114.7	7.6	85.9	1144	121.7	11.1	85.8
	Undergraduate fourth year	1268	114.2	7.8	83.0	1327	119.3	11.3	79.7
	Undergraduate fifth yr or above	125	114.4	7.9	82.4	141	118.6	12.0	76.6
	Undergraduate graduated	197	110.7	8.0	66.5	209	115.9	10.4	68.4
	Postgraduate first year	627	120.8	8.9	93.3	636	129.1	12.0	94.8
	Postgraduate second year	836	118.7	9.3	90.0	833	124.9	12.4	87.8
	Postgraduate third year	76	117.9	10.2	84.2	90	122.6	14.0	81.1
	Postgraduate fourth year	76	116.9	9.4	86.8	79	121.0	12.8	81.0
	Postgraduate fifth yr or above	60	117.1	14.5	83.3	58	123.3	12.7	82.8
	Postgraduate graduated	169	113.1	9.3	73.4	178	118.2	12.9	72.5
	Pathway first year	4	-	-	-	8	-	-	-
	Pathway second year	1	-	-	-	3	-	-	-
	Pathway third year	0	-	-	-	0	-	-	-

	Pathway fifth yr or above	0	-	-	-	1	-	-	-
	Pathway graduated	3	-	-	-	2	-	-	-
Course Category	Early childhood	479	112.1	8.2	72.9	501	117.2	11.2	72.5
	Primary	2355	115.1	8.3	85.0	2394	120.9	11.4	83.7
	Secondary	2001	117.9	8.9	89.8	2017	125.6	12.3	89.3
	Special education	34	115.7	8.8	79.4	30	118.2	10.3	80.0
	Other	612	113.5	8.7	77.8	647	118.9	11.8	77.7

Table 45: Performance by demographic characteristics in test window 2 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	371	112.1	8.5	72.5	423	116.2	10.4	72.8
	Male	188	114.8	8.8	84.0	165	125.1	12.6	86.7
	Indeterminate/intersex	0	-	-	-	1	-	-	-
Age	17–25	281	112.2	7.7	75.4	301	118.8	11.6	75.7
	26–30	125	113.3	8.8	76.8	125	118.3	11.1	76.0
	31–35	57	114.1	8.9	78.9	56	119.3	11.8	82.1
	36–40	43	116.2	9.7	88.4	43	121.6	12.3	86.0
	41–45	23	115.8	12.2	73.9	26	118.9	14.0	73.1
	46+	30	111.0	10.8	63.3	38	114.3	12.0	71.1
International Students	No	512	113.6	8.6	79.3	563	118.7	11.6	77.1
	Yes	47	107.3	7.7	44.7	26	117.7	14.0	69.2
English as a First Language	Yes	449	114.3	8.2	82.6	508	119.1	11.5	78.7
	No	110	107.7	8.6	50.9	81	115.6	12.9	64.2
Indigenous	No	532	113.1	8.7	76.1	563	118.8	11.9	76.9
	Yes	19	112.6	9.8	78.9	18	115.4	9.6	66.7
	Not disclosed	8	-	-	-	8	-	-	-
Residential Area	Metropolitan areas	422	112.8	8.8	76.1	450	117.9	11.7	74.7
	Provincial areas	124	113.8	8.5	77.4	126	120.8	11.7	82.5
	Remote areas	9	-	-	-	7	-	-	-
	International	3	-	-	-	4	-	-	-
	Invalid or Missing	1	-	-	-	2	-	-	-
Program Type	Undergraduate	347	112.1	7.8	76.4	379	117.8	11.3	75.7
	Postgraduate	201	114.9	9.9	78.1	202	120.7	12.2	80.7
	Pathway	11	107.9	6.6	45.5	8	-	-	-
Program Type by Year Level	Undergraduate first year	8	-	-	-	6	-	-	-
	Undergraduate second year	7	-	-	-	5	-	-	-
	Undergraduate third year	18	112.7	8.1	88.9	18	122.5	12.5	94.4
	Undergraduate fourth year	206	113.1	7.7	79.6	226	118.9	11.2	78.8
	Undergraduate fifth yr or above	42	112.1	9.5	76.2	49	115.9	11.9	67.3
	Undergraduate graduated	66	109.2	6.2	65.2	75	114.1	9.9	66.7
	Postgraduate first year	4	-	-	-	4	-	-	-
	Postgraduate second year	102	116.2	9.2	84.3	95	123.0	11.8	87.4
	Postgraduate third year	16	113.4	9.3	87.5	14	120.6	11.5	85.7
	Postgraduate fourth year	15	120.1	9.4	93.3	16	122.9	11.0	93.8
	Postgraduate fifth yr or above	14	120.3	11.6	85.7	17	120.8	16.2	76.5
	Postgraduate graduated	50	110.1	9.2	58.0	56	116.3	11.0	66.1
	Pathway first year	10	106.7	5.6	40.0	7	-	-	-
	Pathway second year	0	-	-	-	1	-	-	-
	Pathway third year	0	-	-	-	0	-	-	-
	Pathway fifth yr or above	0	-	-	-	0	-	-	-
	Pathway graduated	1	-	-	-	0	-	-	-
Course Category	Early childhood	50	108.9	7.8	60.0	56	112.1	8.4	66.1
	Primary	231	113.2	8.2	79.2	256	118.1	10.9	76.2
	Secondary	195	115.1	9.1	83.1	200	121.8	12.0	84.0
	Special education	3	-	-	-	3	-	-	-
	Other	80	110.4	8.6	62.5	74	116.5	13.2	66.2

Table 46: Performance by demographic characteristics in test window 3 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4825	115.3	8.8	84.3	4783	121.2	11.9	83.6
	Male	1622	118.3	8.8	91.9	1606	128.3	11.5	94.8
	Indeterminate/intersex	1	-	-	-	1	-	-	-
Age	17–25	4230	115.2	8.2	85.8	4174	122.5	11.8	85.8
	26–30	998	117.1	9.2	87.1	994	123.6	12.2	87.9
	31–35	469	118.8	9.7	89.1	467	124.8	12.8	88.2
	36–40	321	118.5	10.2	87.9	333	124.2	12.5	89.8
	41–45	224	117.9	11.3	82.6	216	124.5	13.0	87.5
	46+	206	118.7	10.8	85.0	206	122.5	14.5	81.1
International Students	No	5898	116.5	8.8	87.7	5887	122.7	12.2	86.0
	Yes	550	111.3	8.7	69.8	503	126.0	11.4	91.7
English as a First Language	Yes	5451	117.0	8.7	89.3	5457	123.0	12.1	86.8
	No	997	111.0	8.5	69.0	933	123.0	12.8	84.5
Indigenous	No	6262	116.1	8.9	86.3	6211	123.0	12.2	86.5
	Yes	102	113.9	7.8	85.3	97	119.6	12.2	83.5
	Not disclosed	84	115.7	9.8	81.0	82	125.4	11.3	86.6
Residential Area	Metropolitan areas	5205	116.1	8.9	86.1	5161	123.1	12.3	86.0
	Provincial areas	1169	115.9	8.7	87.0	1154	122.4	11.7	88.1
	Remote areas	47	116.7	10.1	78.7	45	121.4	11.6	88.9
	International	17	115.0	9.8	76.5	22	126.6	11.2	95.5
	Invalid or Missing	10	113.4	11.2	70.0	8	-	-	-
Program Type	Undergraduate	3940	114.4	7.9	84.0	3910	120.8	11.5	83.5
	Postgraduate	2459	119.0	9.6	90.1	2443	126.7	12.2	91.4
	Pathway	49	108.6	7.5	63.3	37	114.8	11.7	70.3
Program Type by Year Level	Undergraduate first year	351	114.6	8.4	82.1	329	124.7	12.1	91.2
	Undergraduate second year	916	114.3	8.0	84.3	896	120.9	12.0	83.4
	Undergraduate third year	1321	114.7	7.5	86.8	1268	121.6	10.8	86.6
	Undergraduate fourth year	1106	114.2	8.1	82.9	1142	119.5	11.3	80.3
	Undergraduate fifth yr or above	142	113.8	7.7	82.4	152	118.7	11.5	77.0
	Undergraduate graduated	104	110.7	8.2	68.3	123	115.0	11.8	69.1
	Postgraduate first year	1356	120.4	9.0	93.5	1352	129.5	11.4	95.9
	Postgraduate second year	768	118.1	9.8	87.8	759	124.0	12.0	88.4
	Postgraduate third year	77	115.5	10.1	80.5	74	118.9	11.5	79.7
	Postgraduate fourth year	72	117.4	9.7	87.5	72	122.8	12.6	81.9
	Postgraduate fifth yr or above	85	118.2	9.2	92.9	83	124.4	14.0	90.4
	Postgraduate graduated	101	112.6	10.3	69.3	103	119.5	12.5	71.8
	Pathway first year	45	108.2	7.6	62.2	33	115.3	12.3	69.7
	Pathway second year	1	-	-	-	1	-	-	-
	Pathway third year	0	-	-	-	1	-	-	-
	Pathway fifth yr or above	0	-	-	-	0	-	-	-
	Pathway graduated	3	-	-	-	2	-	-	-
Course Category	Early childhood	595	111.2	8.5	69.7	569	118.5	11.8	77.3
	Primary	2740	115.7	8.3	87.3	2749	121.4	11.6	84.6
	Secondary	2342	118.5	8.9	91.1	2346	126.6	12.2	91.5
	Special education	34	113.8	7.7	88.2	27	119.4	11.2	88.9
	Other	737	113.9	8.7	79.5	699	120.9	11.7	83.8

Table 47: Performance by demographic characteristics in test window 4 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4627	115.2	8.6	84.7	4654	120.9	11.8	83.4
	Male	1633	117.3	8.2	90.8	1603	127.9	12.0	94.4
	Indeterminate/intersex	0	-	-	-	0	-	-	-
Age	17–25	3984	114.7	7.8	86.0	3950	122.0	11.6	86.2
	26–30	1016	116.5	9.0	86.2	1053	123.1	12.5	86.3
	31–35	470	117.5	9.7	87.4	496	124.4	14.2	85.9
	36–40	352	118.4	9.3	88.6	341	125.7	13.0	89.4
	41–45	225	119.2	10.0	86.7	211	125.3	13.7	85.8
	46+	213	118.4	10.4	84.0	206	122.9	14.0	82.5
International Students	No	5787	116.2	8.4	87.9	5873	122.6	12.3	86.0
	Yes	473	110.5	8.5	66.8	384	123.9	11.8	89.6
English as a First Language	Yes	5329	116.6	8.3	89.6	5436	122.9	12.2	87.0
	No	931	110.8	8.5	67.2	821	121.2	12.7	81.0
Indigenous	No	6082	115.8	8.6	86.4	6076	122.8	12.2	86.4
	Yes	96	114.0	9.0	81.3	104	118.5	12.3	76.0
	Not disclosed	82	115.1	8.3	82.9	77	123.6	13.2	85.7
Residential Area	Metropolitan areas	5054	115.7	8.5	86.3	5084	122.6	12.3	85.7
	Provincial areas	1113	116.1	8.8	86.6	1090	123.2	12.3	88.2
	Remote areas	47	115.8	9.4	83.0	45	121.4	10.6	88.9
	International	36	114.4	9.8	75.0	30	131.5	9.2	100.0
	Invalid or Missing	10	112.1	10.6	70.0	8	-	-	-
Program Type	Undergraduate	3976	114.2	7.7	84.4	3980	120.8	11.5	83.8
	Postgraduate	2241	118.5	9.3	90.2	2231	126.3	12.8	90.9
	Pathway	43	109.3	8.4	51.2	46	114.7	11.7	65.2
Program Type by Year Level	Undergraduate first year	613	114.6	7.5	86.3	628	122.7	11.4	87.6
	Undergraduate second year	785	114.5	7.8	84.2	783	121.5	11.5	85.2
	Undergraduate third year	1616	114.4	7.3	86.9	1583	121.0	11.0	86.1
	Undergraduate fourth year	737	114.0	8.5	81.7	765	119.5	12.0	79.3
	Undergraduate fifth yr or above	107	113.5	7.5	79.4	109	117.6	11.4	74.3
	Undergraduate graduated	118	109.6	6.7	64.4	112	113.7	10.6	59.8
	Postgraduate first year	1481	119.1	8.9	92.7	1451	128.0	12.2	94.5
	Postgraduate second year	496	118.2	9.9	87.3	502	124.2	12.9	87.1
	Postgraduate third year	67	115.7	9.3	83.6	76	121.3	13.7	78.9
	Postgraduate fourth year	69	115.9	10.3	78.3	62	123.7	13.3	83.9
	Postgraduate fifth yr or above	50	118.7	9.0	88.0	59	122.9	17.4	74.6
	Postgraduate graduated	78	113.3	8.6	79.5	81	118.2	11.5	80.2
	Pathway first year	42	109.2	8.5	50.0	45	114.5	11.7	64.4
	Pathway second year	0	-	-	-	0	-	-	-
	Pathway third year	0	-	-	-	0	-	-	-
	Pathway fifth yr or above	0	-	-	-	0	-	-	-
	Pathway graduated	1	-	-	-	1	-	-	-
Course Category	Early childhood	491	111.7	8.7	72.3	486	117.5	11.4	75.9
	Primary	2501	115.4	8.3	86.9	2538	121.8	11.8	86.1
	Secondary	2408	117.5	8.5	90.5	2376	125.7	12.4	90.4
	Special education	36	116.9	7.1	94.4	35	121.2	12.3	85.7
	Other	824	113.8	8.3	80.0	822	120.2	12.0	80.3

Figure 7 to Figure 11 show achievement distributions in literacy and numeracy by demographic characteristics for each test window.

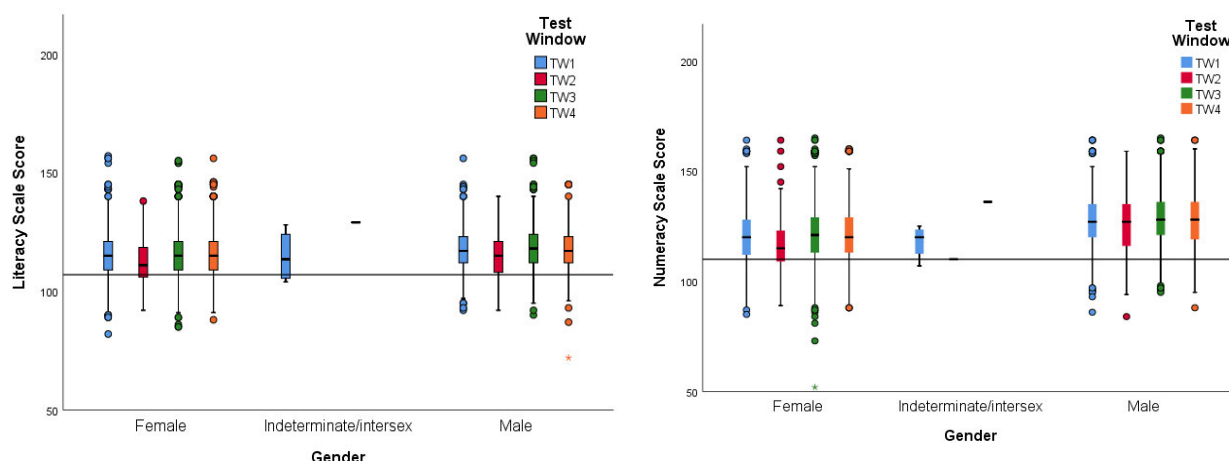


Figure 7: Score distribution by gender and test window

Figure 7 shows that, for literacy, the distributions of the scale scores of female candidates and male candidates are very similar to each other and across test windows. For numeracy, while the distributions of the scale scores of male candidates were higher up the scale than those of female candidates, it can be seen that in each test window most female candidates achieved well above the numeracy standard. It can also be seen that there were female candidates achieving very high numeracy scores. The median scale scores were lowest in test window 2 for both males and females for literacy and for females for numeracy. There was little apparent variation between test windows for males for numeracy.

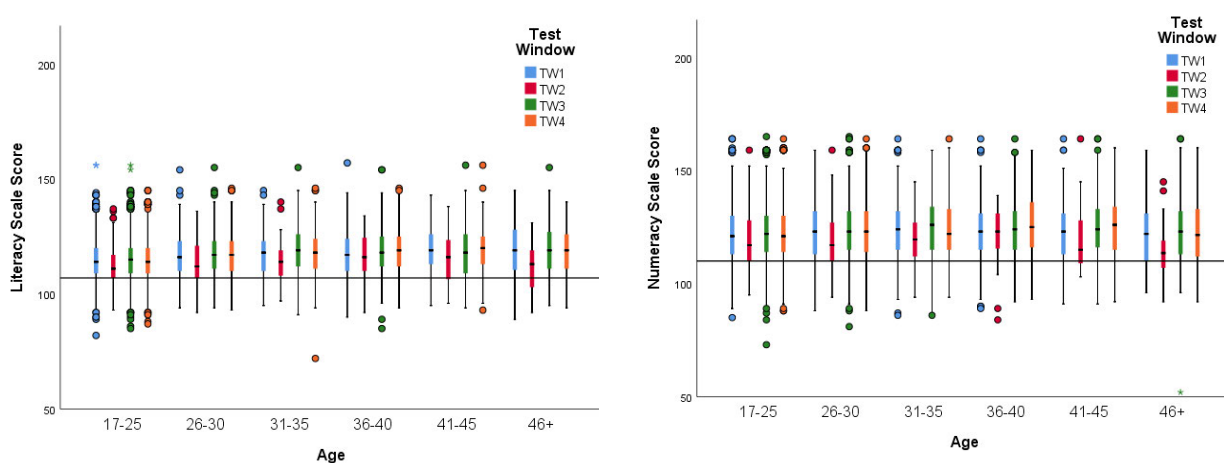


Figure 8: Score distribution by age group and test window

Figure 8 shows that, for both literacy and numeracy, the distributions of the scale scores of the age groups are very similar. Again, median scores were lowest for test window 2.

Figure 9: Score distribution by program type, year level and test window – literacy

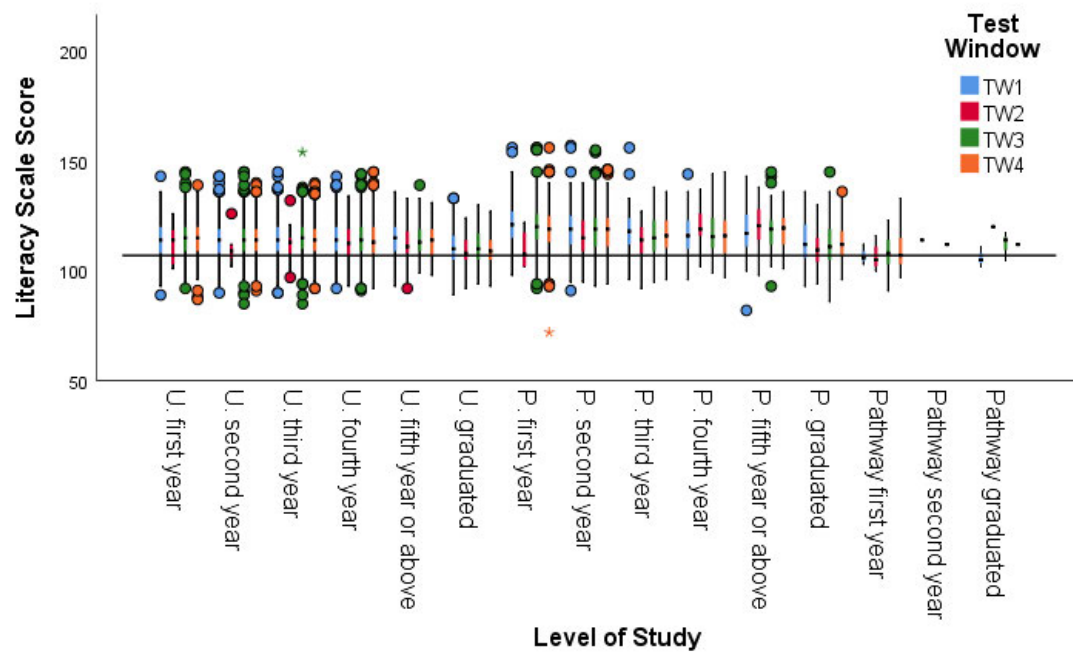


Figure 9 shows that, for literacy, there are no observable patterns in the scale score distributions of undergraduates except that there is a decline in achievement of candidates after their graduation. There is a stronger downward trend in the distributions of postgraduate candidates. This is primarily due to the higher proportions of resit candidates in the later year cohorts.

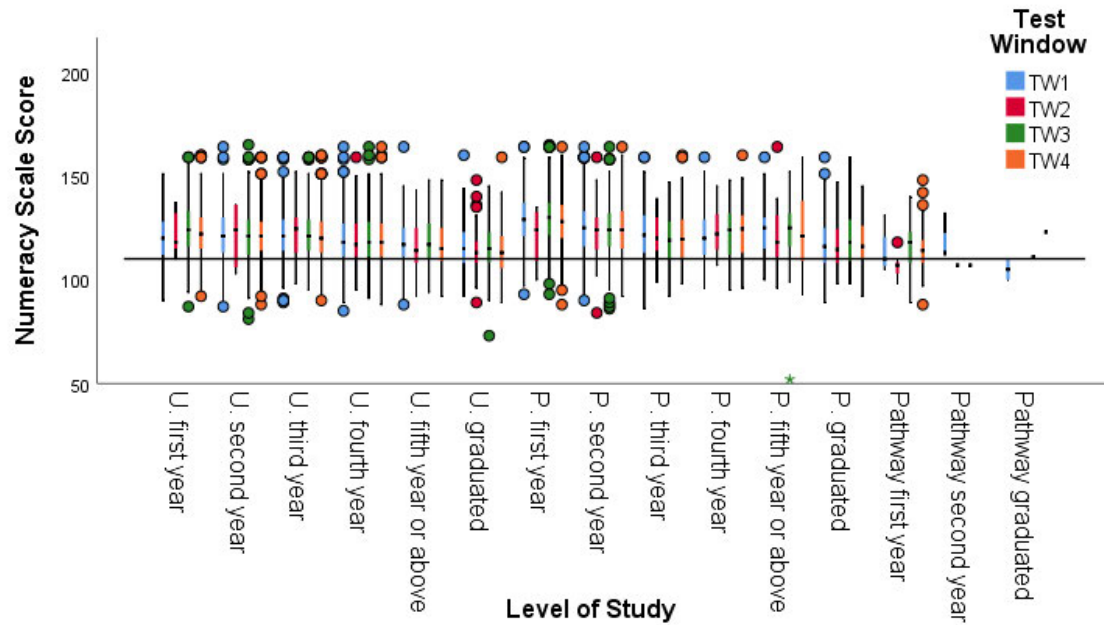


Figure 10: Score distribution by program type, year level and test window – numeracy

Figure 10 shows similar downward trends for numeracy as those shown in Figure 9 for literacy.

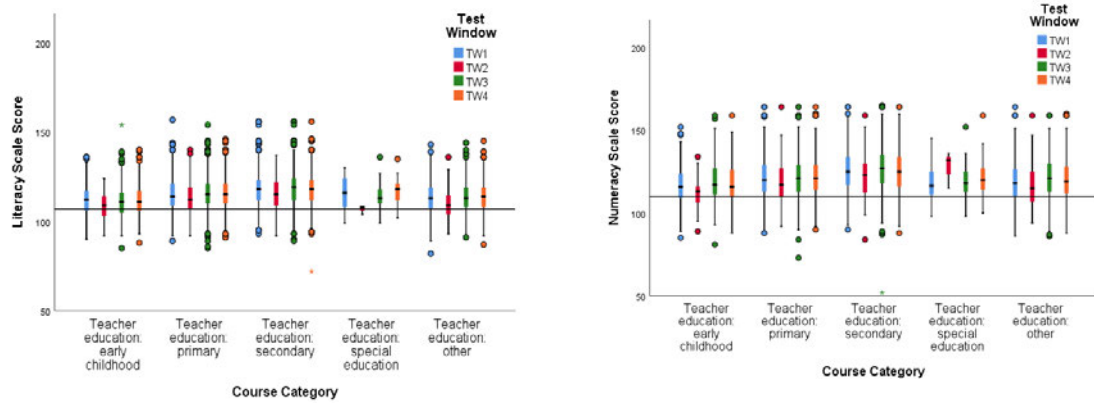


Figure 11: Score distribution by course category and test window

Figure 11 shows that the only observable pattern between test windows in the scale score distributions of the course categories for both literacy and numeracy is for test window 2.

Appendix 5: Performance by Test Centres and Remote Proctoring by Test Window

Table 48 shows performance by location of test centres and remote proctoring in test windows 1 to 4.

Table 48: Performance by test centres and remote proctoring in test windows 1 to 4

Test Window	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
TW1	Capital Cities	3487	115.6	8.8	84.8	3575	122.0	11.9	84.4
	Regional Cities	842	115.5	8.3	84.9	827	122.6	11.7	85.6
	Remote Proctoring	1152	116.1	9.3	84.8	1187	121.8	13.0	81.7
TW2	Capital Cities	0	-	-	-	0	-	-	-
	Regional Cities	0	-	-	-	0	-	-	-
	Remote Proctoring	559	113.0	8.7	76.4	589	118.6	11.7	76.7
TW3	Capital Cities	2420	116.3	8.8	86.9	2415	123.3	12.1	86.5
	Regional Cities	0	-	-	-	0	-	-	-
	Remote Proctoring	4028	116.0	8.9	85.7	3975	122.8	12.2	86.4
TW4	Capital Cities	2091	115.8	8.3	86.9	2074	123.2	12.2	86.5
	Regional Cities	140	117.9	8.1	94.3	146	126.2	11.8	93.2
	Remote Proctoring	4029	115.6	8.7	85.7	4037	122.3	12.3	85.8

There were no clearly observable trends or differences in mean scale scores between categories across test windows 1, 3 and 4, for either component of the test. The mean scale scores were lowest in test window 2, when there was remote proctoring only and a small number of candidates.

Appendix 6: Analysis of Differential Item Functioning

Differential item functioning (DIF) analysis was performed to investigate if there are any trial items that may favour one subgroup over another. DIF analysis was not performed for Indigenous candidates, international candidates, English not as a first language candidates and regional and remote candidates due to insufficient sample size ($n < 50$). Items showing DIF are reported in Figure 12 to Figure 15 and Table 49 to Table 52.

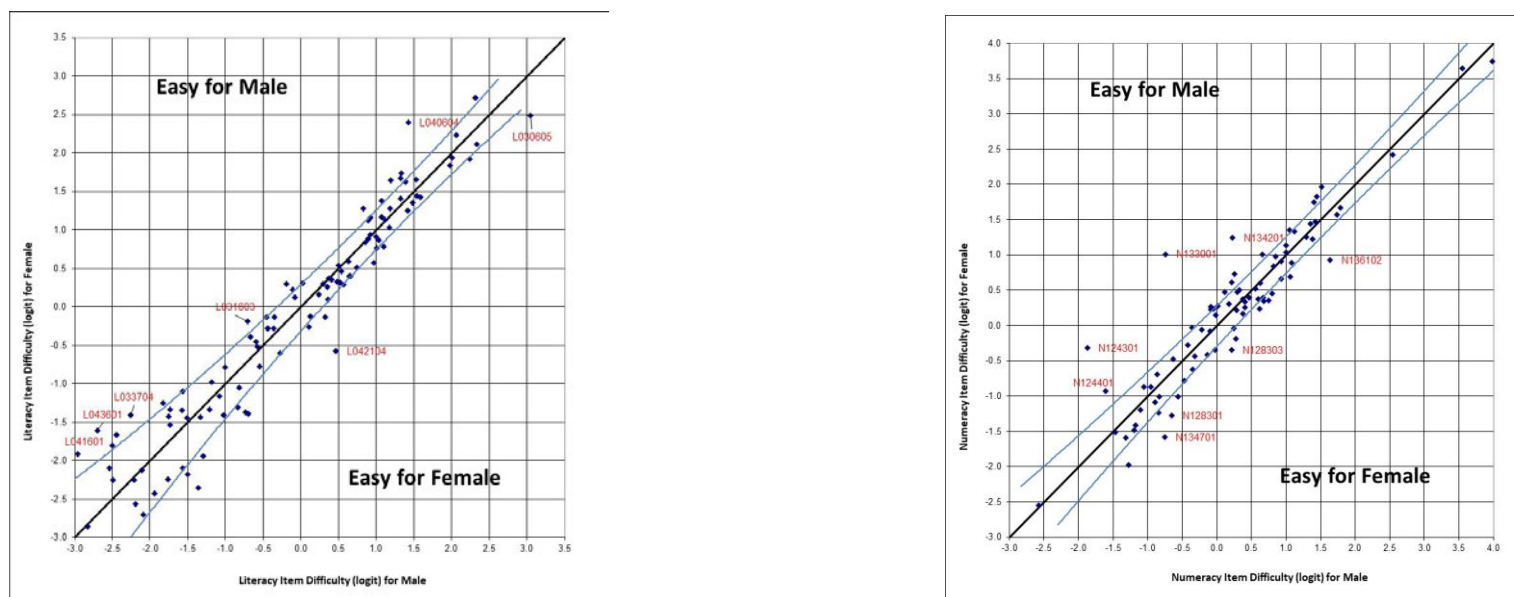


Figure 12: Gender DIF plots

As shown by Figure 12, several trial items are relatively distant from the confidence intervals and these are listed in Table 49. The table shows that, for literacy, of the 109 trial items, two items significantly favoured females (one Technical Skills of Writing and one Reading) and five items significantly favoured males (three Technical Skills of Writing and two Reading). For both males and females, the number of items for Technical Skills of Writing items and Reading items were balanced, unlike for 2019 when all of the items favouring females were Technical Skills of Writing items and all of the items favouring males were Reading items.

For numeracy, of the 86 trial items, four items significantly favoured females and four items significantly favoured males. Of the four items favouring females, most (three) were Statistics items and one was a Number and Algebra item (unlike 2019 when most were Number and Algebra items). Of the four items favouring males, two were Measurement and Geometry items, one was a Statistics item and one was a Number and Algebra item (unlike 2019 where most were number and Algebra items).

Table 49: List of potential gender DIF items

Item Label	Name	Difference in Item Difficulties (logit) (Male – Female)	Standardised Difference in Item Difficulties (logit) (Male – Female)	Chi-square	Probability	Gender Favoured	Content
L030605	ACSF Performance Features	0.56	3.8	14.2	0.00	Female	Reading
L033704	Bilingual Children	–0.86	–3.4	11.7	0.00	Male	Reading
L031603	The Child and the Curriculum	–0.52	–3.2	10.2	0.00	Male	Reading
L040604	Yearbook	–0.97	–6.6	43.1	0.00	Male	TSW
L041601	Politics club	–1.05	–3.2	10.1	0.00	Male	TSW
L042104	Acknowledgement of Country	1.04	6.0	35.5	0.00	Female	TSW
L043601	Camp Report	–1.09	–3.8	14.3	0.00	Male	TSW
N134201	Early Years Report	–1.01	–8.3	69.1	0.00	Male	Number
N134701	Predicted Height	0.83	3.7	13.9	0.00	Female	Algebra
N124301	Spread of Achievement	–1.55	–7.5	56.4	0.00	Male	Statistics
N124401	Dance Studio	–0.68	–3.5	12.2	0.00	Male	Measurement
N128301	Event Attendance	0.63	3.9	15.0	0.00	Female	Statistics
N133001	Diyari Koolchee	–1.75	–11.9	141.7	0.00	Male	Measurement
N136102	Australian Dollar	0.71	5.2	27.3	0.00	Female	Statistics
N128303	Event Attendance	0.56	4.3	18.5	0.00	Female	Statistics

Figure 13 shows the DIF plots for age groups (17–25-year-olds compared to 26+-year-olds). There are nine literacy and five numeracy items outside the confidence interval limits for both literacy and numeracy.

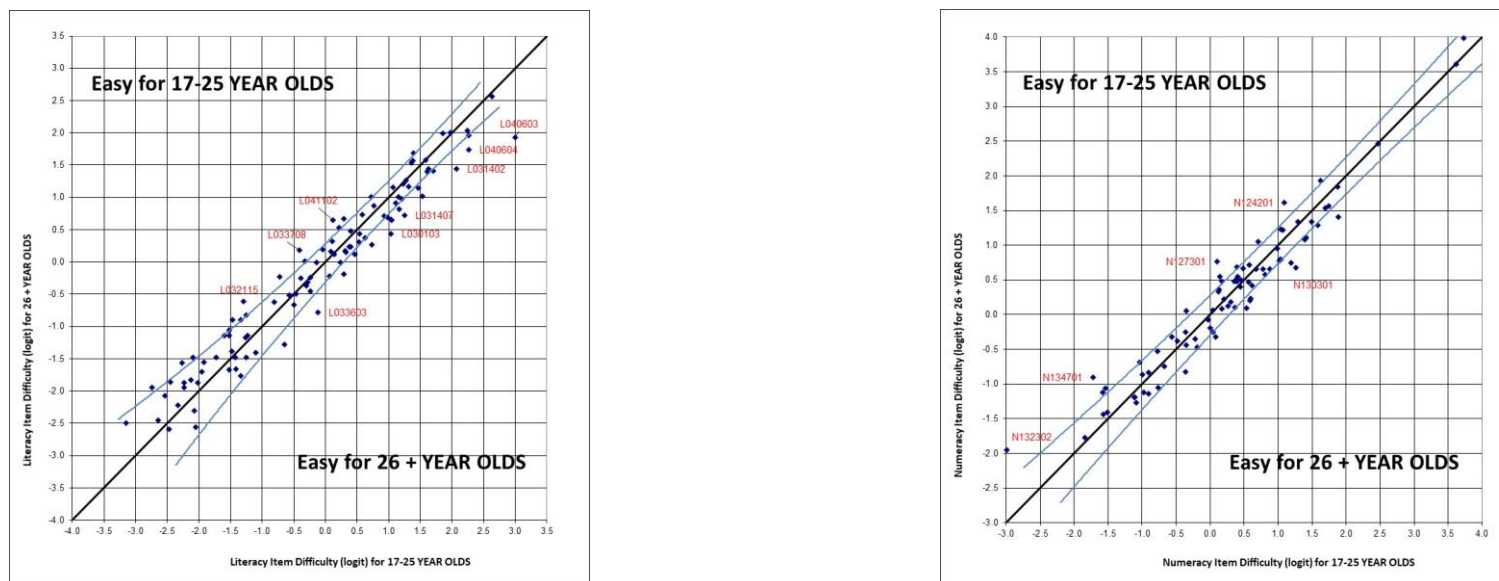


Figure 13: Age group DIF plots

Table 50 lists the trial items with potential DIF by age group. Of the nine literacy items showing significant age DIF, most (six) favoured candidates aged over 25, a similar finding to previous years. This is not a surprising finding given the achievement of candidates on the literacy component tends to increase with age. Of the six literacy items favouring candidates aged over 25, most (four) were Reading items. Of the five numeracy items showing significant age DIF, most (four) favoured candidates aged 17–25 (unlike 2019 when most favoured candidates aged over 25). Two were Number and Algebra items, and two were Statistics items. A calculator was not allowed for the item that favoured candidates aged over 25.

Table 50: List of potential age group DIF items

Item Label	Name	Difference in Item Difficulties (logit) (17–25-Year-Olds – 26+-Year-Olds)	Standardised Difference in Item Difficulties (logit) (17–25-Year-Olds – 26+-Year-Olds)	Chi-square	Probability	Age Favoured	Content
L032115	Saying Goodbye	–0.69	–3.5	12.2	0.00	17–25 YEAR OLDS	Reading
L030103	First-generation Teachers	0.61	4.6	21.4	0.00	26 + YEAR OLDS	Reading
L033708	Bilingual Children	–0.59	–3.7	13.5	0.00	17–25 YEAR OLDS	Reading
L031402	Introducing a New Education System	0.63	4.5	20.1	0.00	26 + YEAR OLDS	Reading
L031407	Introducing a New Education System	0.53	3.9	14.8	0.00	26 + YEAR OLDS	Reading
L033603	Code Mixing	0.66	3.8	14.3	0.00	26 + YEAR OLDS	Reading
L040603	Yearbook	1.07	6.7	45.5	0.00	26 + YEAR OLDS	TSW
L040604	Yearbook	0.54	3.8	14.2	0.00	26 + YEAR OLDS	TSW
L041102	Art Excursion Prompts	–0.53	–3.5	12.6	0.00	17–25 YEAR OLDS	TSW
*N130301	Loan Repayment	0.59	5.3	27.6	0.00	26 + YEAR OLDS	Number
N127301	Attitude to School	–0.66	–4.5	20.3	0.00	17–25 YEAR OLDS	Statistics
N132302	New Room	–1.04	–3.9	15.1	0.00	17–25 YEAR OLDS	Number
N134701	Predicted Height	–0.81	–3.6	13.2	0.00	17–25 YEAR OLDS	Algebra
N124201	Skills Priority	–0.52	–4.4	18.9	0.00	17–25 YEAR OLDS	Statistics

*Calculator not available

Figure 14 shows the DIF plots for program type (undergraduate compared to postgraduate).

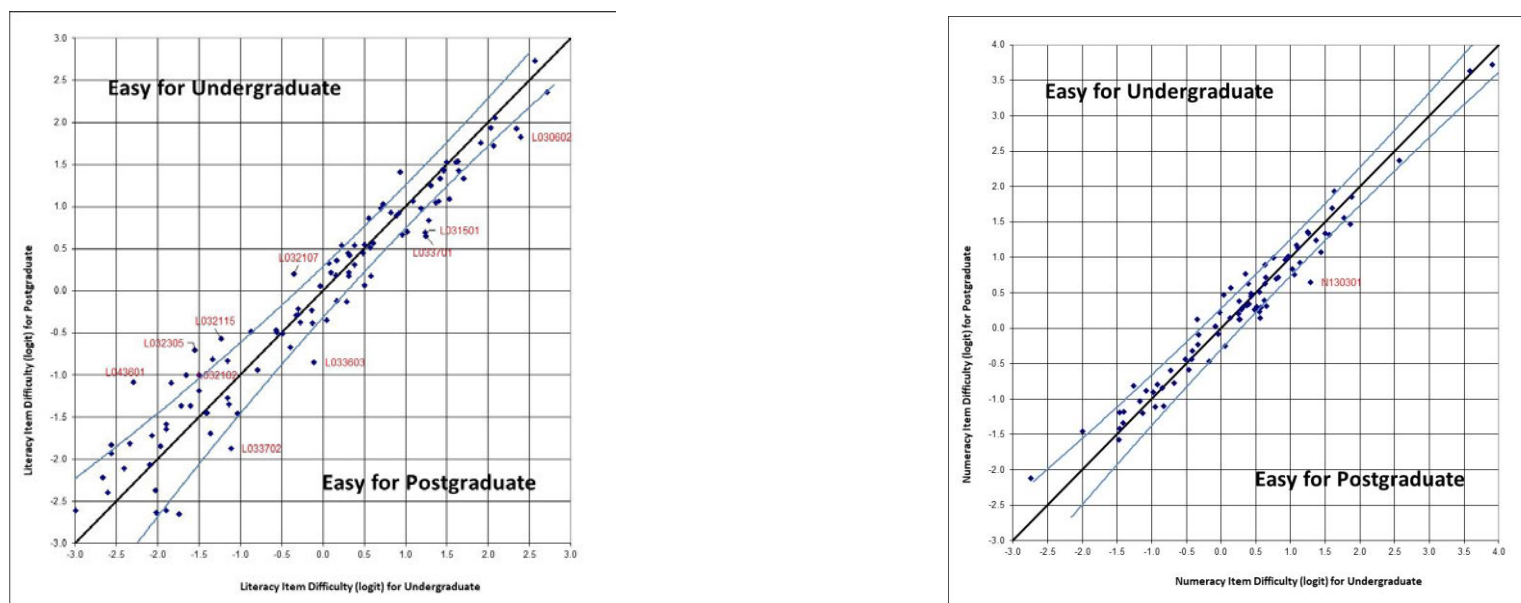


Figure 14: Program type DIF plots

Table 51 lists the trial items with potential DIF by program type. For literacy, five of the ten items showing significant DIF by program type favoured postgraduate candidates and five items favoured undergraduate candidates (unlike 2019 when postgraduate candidates were favoured in three of four items). Nine of the ten items were Reading items and one was a Technical Skills of Writing item that favoured undergraduates. For numeracy, there was one item showing significant DIF by program type, favouring postgraduates. It was a Number and Algebra item for which a calculator was not available.

Table 51: List of potential program type DIF items

Item Label	Name	Difference in Item Difficulties (logit) (Undergraduate – Postgraduate)	Standardised Difference in Item Difficulties (logit) (Undergraduate – Postgraduate)	Chi-square	Probability	Program favoured	Content
L032102	Saying Goodbye	–0.65	–4.0	16.2	0.00	Undergraduate	Reading
L032107	Saying Goodbye	–0.55	–3.6	12.9	0.00	Undergraduate	Reading
L032115	Saying Goodbye	–0.66	–3.3	11.1	0.00	Undergraduate	Reading
L030602	ACSF Performance Features	0.57	4.1	17.0	0.00	Postgraduate	Reading
L031501	Documenting Student Learning	0.55	4.2	17.3	0.00	Postgraduate	Reading
L033701	Bilingual Children	0.60	4.5	20.6	0.00	Postgraduate	Reading
L033702	Bilingual Children	0.76	3.3	10.6	0.00	Postgraduate	Reading
L032305	Learning the Piano	–0.85	–3.7	13.9	0.00	Undergraduate	Reading
L033603	Code Mixing	0.75	4.3	18.1	0.00	Postgraduate	Reading
L043601	Camp Report	–1.21	–4.2	17.7	0.00	Undergraduate	TSW
*N130301	Loan Repayment	0.64	5.6	31.2	0.00	Postgraduate	Number

*Calculator not available

Figure 15 shows the DIF plots for course category (early childhood & primary compared to secondary).

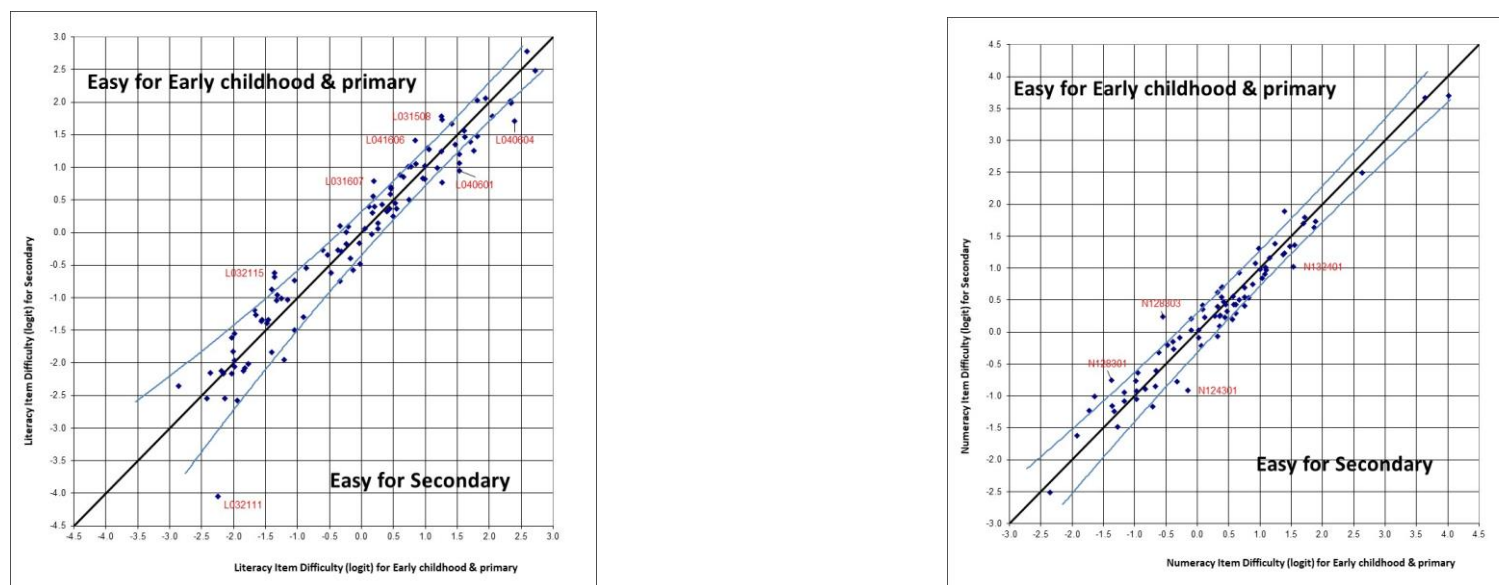


Figure 15: Course category DIF plots

For literacy, it can be seen from Figure 15 that four items significantly favoured early childhood and primary candidates, and three favoured secondary candidates. For numeracy, two items significantly favoured early childhood and primary candidates, and two favoured secondary candidates.

Table 52 lists the items with significant course category DIF. Of the four literacy items that favoured early childhood and primary candidates, three assessed Reading and one assessed Technical Skills of Writing. Of the three items that favoured Secondary candidates, two assessed Reading and one assessed Technical Skills of Writing. Of the four numeracy items, the two favouring secondary course candidates were a Statistics item and an Algebra item. The two favouring early childhood and primary course candidates were both statistics items.

Table 52: List of potential course category DIF items

Item Label	Name	Difference in Item Difficulties (logit) (Early childhood & primary – Secondary)	Standardised Difference in Item Difficulties (logit) (Early childhood & primary – Secondary)	Chi-square	Probability	Course favoured	Content
L032111	Saying Goodbye	1.81	4.6	21.3	0.00	Secondary	Reading
L032115	Saying Goodbye	-0.74	-3.4	11.4	0.00	Early childhood & primary	Reading
L031508	Documenting Student Learning	-0.53	-3.8	14.4	0.00	Early childhood & primary	Reading
L031607	The Child and the Curriculum	-0.59	-4.0	16.2	0.00	Early childhood & primary	Reading
L040601	Yearbook	0.58	3.9	15.5	0.00	Secondary	TSW
L040604	Yearbook	0.69	4.5	20.0	0.00	Secondary	TSW
L041606	Politics club	-0.58	-3.9	15.3	0.00	Early childhood & primary	TSW
N124301	Spread of Achievement	0.76	3.5	12.2	0.00	Secondary	Statistics
N132401	Relief Classes	0.51	4.3	18.5	0.00	Secondary	Algebra
N128301	Event Attendance	-0.62	-3.4	11.9	0.00	Early childhood & primary	Statistics
N128303	Event Attendance	-0.79	-5.5	30.5	0.00	Early childhood & primary	Statistics

It is worth noting that four literacy items and four numeracy items showed significant DIF for more than one subgroup, as shown in Table 53. The content of these eight items will be further explored and they will be given a low priority for selection and release.

Table 53: List of items showing multiple DIF

Item label	Name	Favoured	Content
L032115	Saying Goodbye	17–25 year-old candidates, early childhood & primary course candidates, and undergraduate candidates	Reading
L033603	Code Mixing	26 + year-old candidates, and postgraduate candidates	Reading
L040604	Yearbook	26 + year-old candidates, secondary course candidates, and male candidates	TSW
L043601	Camp Report	Male candidates and undergraduate candidates	TSW

N124301	Spread of Achievement	Secondary candidates and male candidates	Statistics
N128301	Event Attendance	Early childhood & primary course candidates and female candidates	Statistics
N128303	Event Attendance	Early childhood & primary course candidates and female candidates	Statistics
*N130301	Loan Repayment	26 + year-old candidates and postgraduate candidates	Number
N134701	Predicted Height	17–25 year-old candidates and female candidates	Algebra

It is also worth noting that some stimulus texts had multiple items showing DIF, as shown in Table 54. This occurred more often with literacy texts mainly because they were associated with larger item sets.

Table 54: List of stimulus texts with multiple items showing DIF

Component	Name	Item label	Favoured	Content
Literacy	ACSF Performance Features	L030602	Postgraduate candidates	Reading
Literacy	ACSF Performance Features	L030605	Female candidates	Reading
Literacy	Bilingual Children	L033701	Postgraduate candidates	Reading
Literacy	Bilingual Children	L033702	Postgraduate candidates	Reading
Literacy	Bilingual Children	L033704	Male candidates	Reading
Literacy	Bilingual Children	L033708	17–25-year-olds	Reading
Literacy	The Child and the Curriculum	L031603	Male candidates	Reading
Literacy	The Child and the Curriculum	L031607	Early childhood & primary candidates	Reading
Literacy	Saying Goodbye	L032102	Undergraduate candidates	Reading
Literacy	Saying Goodbye	L032107	Undergraduate candidates	Reading
Literacy	Saying Goodbye	L032111	Secondary candidates	Reading
Literacy	Saying Goodbye	L032115	Undergraduate and Early childhood & primary and 17–25 year old candidates	Reading
Literacy	Documenting Student Learning	L031501	Postgraduate candidates	Reading
Literacy	Documenting Student Learning	L031508	Early childhood & primary candidates	Reading
Literacy	Introducing a New Education System	L031402	26+-year-old candidates	Reading
Literacy	Introducing a New Education System	L031407	26+-year-old candidates	Reading
Literacy	Yearbook	L040601	Secondary candidates	TSW
Literacy	Yearbook	L040603	26+-year-old candidates	TSW
Literacy	Yearbook	L040604	Male and 26+-year-old candidates and secondary candidates	TSW
Literacy	Politics club	L041601	Male candidates	TSW
Literacy	Politics club	L041606	Early childhood & primary candidates	TSW
Numeracy	Event Attendance	N128301	Female candidates and Early childhood & primary candidates	Statistics
Numeracy	Event Attendance	N128303	Female candidates and Early childhood & primary candidates	Statistics

There appear to be some consistent DIF patterns in some texts but less so in others. For example, for literacy, four of the 13 trial items associated with the 'Saying Goodbye' text favoured undergraduate candidates, which suggests there may be something about this Reading stimulus generally that makes it easier for undergraduate candidates. The 'Event Attendance' text for numeracy, assessing statistics, appears to consistently favour female and early childhood and primary candidates. These texts will be investigated further.



LITERACY AND NUMERACY TEST FOR INITIAL TEACHER EDUCATION STUDENTS

2021 Technical Report

FOR THE DEPARTMENT OF EDUCATION
AND TRAINING, APRIL 2022

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1. OVERVIEW

1.1 Administration

The Literacy and Numeracy Test for Initial Teacher Education students ('the test') was conducted across Australia for the sixth year, in four test windows, from February 2021 to November 2021. In this period, 24 604 unique candidates attempted one or both components of the test (literacy and numeracy), of which 16 had initially registered for the test in 2016, 121 in 2017, 336 in 2018, 727 in 2019 and 1437 in 2020.

COVID-19 continued to pose significant challenges to the administration of the test in 2021. However, cancellation of test sessions was confined to particular states (namely ACT, NSW and VIC) with severe outbreaks of COVID-19 at different times. Remote proctoring played an increasingly important role in the challenging environment. It enabled affected candidates, whose test centre sessions in ACT, NSW and VIC were cancelled due to the state restrictions, to sit the test by remote proctoring. This was especially important for those who needed to sit the test for graduation, placement or teacher registration purposes by a certain date.

The other key challenge was the ever-evolving COVID-19 regulations in the various states and territories. Rules on density limits, masks, check in and vaccination differed across states and often changed (sometimes within the same testing window) with very short notice. ACER kept abreast of the changing requirements in each state/territory and worked closely with the test venues to ensure all prevailing regulations at the point of testing in each state/territory were adhered to. All necessary COVID-safe measures were undertaken to ensure the safety and well-being of all candidates.

In 2021, 21 967 candidates registered for the test and attempted one or both components of the test for the first time compared to 17 333 in 2020 (an increment of 4634).

In 2021, 20 891 candidates (4380 more than in 2020) sat the literacy component for the first time and 20 720 candidates (4407 more than in 2020) sat the numeracy component for the first time. The increment in numbers for both literacy and numeracy was greater than for the previous year.

During 2021, there were 2685 resits (by 2319 unique candidates) of the literacy component for a second, third, fourth or fifth time. This included the resits of 1501 candidates who sat for a second time and 593 candidates who sat for a third time. There were 2572 resits (by 2255 unique candidates) of the numeracy component in 2021 for a second, third, fourth or fifth time. This included the resits of 1458 candidates who sat for a second time and 594 candidates who sat for a third time.

As for 2019 and 2020, in 2021 approximately three-quarters (73%) of the candidates were female. Most (64%) were aged 25 or less (64% for 2020) and slightly more candidates (42%) were enrolled in primary courses than in secondary courses (40%), similar to 2020 (42% and 37% respectively).

Students from 47 higher education providers sat the test in 2021, the same providers as in 2020. The test was offered at 18 test centres (8 capital cities and 10 regional cities) in all states and territories, or via remote proctoring under prescribed conditions.

More than a third (39%) of first-attempt candidates in 2021 sat the test at a test centre, with 61% choosing remote proctoring. Candidates resitting the test in 2021 were more likely to do so via remote proctoring with each attempt. For example, in 2021, 66% of second-attempt candidates, 66% of third-attempt candidates and 74% of fourth-attempt candidates sat the test remotely.

Table 1 shows the number of sittings by location for each test window (TW). The proportion of sittings by remote proctoring in 2021 was 62%, up from 52% in 2020. By comparison, 23% of sittings were by remote proctoring in 2019 (pre-COVID).

Table 1: Number of sittings by location and by test window, including resits¹

Location of testing	TW1		TW2		TW3		TW4	
	Literacy	Numeracy	Literacy	Numeracy	Literacy	Numeracy	Literacy	Numeracy
Capital cities	2983	2953	2760	2662	1458	1401	1195	1233
Regional cities	93	90	471	450	110	114	38	28
Remote proctoring	2697	2717	2810	2754	3987	3955	4974	4935
Total sittings	5773	5760	6041	5866	5555	5470	6207	6196

At each test window, a proportion of candidates (30–33%) chose to attempt only one of the test components, as shown in Table 2. In 2021, the proportions of sittings were similar across the four test windows. Test window 4 had the greatest proportion (27%), test window 3 had the smallest (23%).

Table 2: Summary of sittings by test window, including resits

Test	TW1	TW2	TW3	TW4	Total
Both literacy and numeracy	4648	4906	4508	5008	19070
Literacy only	1125	1135	1047	1199	4506
Numeracy only	1112	960	962	1188	4222
Total sittings	6885	7001	6517	7395	27798

Testing conditions were modified to accommodate 674 candidates with special needs in 2021, compared to 555 in 2020. Accessible versions of the test were also available for candidates who required supportive technology, such as a screen reader. The online accessible versions of the test were used on several occasions. In 2021, as in 2020, there was an increase in the number of requests to accommodate anxiety disorders (53% increase for literacy, 31% for numeracy) from the previous year. Accommodations are further described in Section 2 of this report.

1.2 Candidate results

Table 3 shows the number of candidates attempting each component and both components and their pass rates at the end of 2021. The table shows how the pass rates increase over time as candidates resit and achieve the standard. For example, of those candidates who initially registered for the literacy component in 2016, the pass rate increased by 2.1% from 95.2% at the end of 2016 to 97.3% at the end of 2017, but only by a further 0.3% to 97.6% at the end of 2018 and a further 0.2% at the end of 2019. At the end of 2021, the pass rate remained at the 2020 rate of 97.8%. By the end of 2021, some resitting candidates had attempted the test up to five times.

¹ Tables 1 and 2 include resit candidates in all test windows.

In the six-year period from 2016 to 2021, the number of unique candidates participating in one or more components of the test was 117 855. Of these, 116 603 sat the literacy component and 116 291 sat the numeracy component. Almost all candidates (115 039) attempted both components of the test while 1564 attempted literacy only and 1252 attempted numeracy only. At the end of 2021, of the 115 039 candidates who had attempted both components, 107 325 candidates had achieved both standards – an overall pass rate of 93.3% (slightly better than the overall pass rate of 92.5% at the end of 2020). The total number of candidates that have completed five attempts at the literacy test by the end of 2021 without achieving the standard is 66. For numeracy, 62 candidates have completed five attempts of the numeracy test without achieving the standard.

By the end of 2021, nearly 98% of the 2016 cohort had met the literacy standard and 97% had met the numeracy standard. Of the 2017 cohort, 96% had met the literacy standard and 96% had met the numeracy standard.

Table 3: Summary of candidate results

Component	Year of registration	At end of year	Number of unique candidates	Standard achieved	Standard not achieved	Cancelled due to misconduct	Pass rate
Literacy	2016	2016	13083	12459	624	0	95.2
	2016	2017	13083	12732	351	0	97.3
	2016	2018	13083	12774	309	0	97.6
	2016	2019	13083	12789	294	0	97.8
	2016	2020	13083	12792	291	0	97.8
	2016	2021	13083	12794	289	0	97.8
	2017	2017	23387	21517	1870	0	92.0
	2017	2018	23387	22212	1175	0	95.0
	2017	2019	23387	22385	1002	0	95.7
	2017	2020	23387	22452	935	0	96.0
	2017	2021	23387	22491	896	0	96.2
	2018	2018	22061	19954	2107	0	90.4
	2018	2019	22061	20734	1327	0	94.0
	2018	2020	22061	20940	1121	0	94.9
	2018	2021	22061	21061	1000	0	95.5
	2019	2019	20670	18953	1717	0	91.7
	2019	2020	20670	19547	1123	0	94.6
	2019	2021	20670	19801	869	0	95.8
	2020	2020	16511	15164	1347	0	91.8
	2020	2021	16511	15747	764	0	95.4
	2021	2021	20891	19400	1491	0	92.9
	2016–21	2021	116603	111294	5309	0	95.4
Numeracy	2016	2016	13084	12324	760	0	94.2
	2016	2017	13084	12623	461	0	96.5
	2016	2018	13084	12663	421	0	96.8
	2016	2019	13084	12678	406	0	96.9
	2016	2020	13084	12689	395	0	97.0
	2016	2021	13084	12693	391	0	97.0
	2017	2017	23465	21650	1815	0	92.3
	2017	2018	23465	22236	1229	0	94.8
	2017	2019	23465	22408	1057	0	95.5
	2017	2020	23465	22495	970	0	95.9

	2017	2021	23465	22540	925	0	96.1
	2018	2018	22007	19810	2197	0	90.0
	2018	2019	22007	20544	1463	0	93.4
	2018	2020	22007	20804	1203	0	94.5
	2018	2021	22007	20918	1089	0	95.1
	2019	2019	20702	18771	1931	0	90.7
	2019	2020	20702	19488	1214	0	94.1
	2019	2021	20702	19774	928	0	95.5
	2020	2020	16313	14990	1323	0	91.9
	2020	2021	16313	15574	739	0	95.5
	2021	2021	20720	19264	1456	0	93.0
	2016–21	2021	116291	110763	5528	0	95.2
Both	2016–21	2021	115039	107325	7714	0	93.3

Table 4 shows the percentage of candidates by the number of attempts they had at each component of the test, as at the end of 2021. It can be seen that across the six years and for both components, approximately 92% of candidates attempted the test once, approximately 5.3% of candidates attempted the test twice, and approximately 26% of candidates attempted the test three or more times. For literacy, by the end of 2021, 5.6% of the candidates who registered in 2016 had resat the test, compared to 9.4% of the 2017 cohort, 10.6% of the 2018 cohort, 9.2% of the 2019 cohort and 7.8% of the 2020 cohort. For numeracy, by the end of 2021, approximately 8.5% of the candidates who registered in 2016 had resat the test, compared to 8.5% of the 2017 cohort, 10.3% of the 2018 cohort, 9.8% of the 2019 cohort and 7.7% of the 2020 cohort.

Table 4: Summary of resit rates by year of registration and overall

Domain	Year of registration	Number of unique candidates	Unique candidates who had 1 attempt only (%)	Unique candidates who had 2 attempts only (%)	Unique candidates who had 3 attempts only (%)	Unique candidates who had 4 attempts only (%)	Unique candidates who had 5 attempts only (%)	Unique candidates who had 6 attempts only (%)	Unique candidates who had 7 attempts only (%)
Literacy	2016	13083	94.4	3.9	1.1	0.5	0.1	NA	NA
	2017	23387	90.7	5.6	2.6	1	0.2	NA	0.0 (1) *
	2018	22061	89.5	6.8	2.7	0.9	0.2	NA	NA
	2019	20670	90.9	6.5	2.1	0.5	0.1	NA	NA
	2020	16511	92.2	5.7	1.8	0.3	0.0 (5) *	NA	NA
	2021	20891	96.3	3.2	0.4	0.0 (2) *	NA	NA	NA
	2016–21	116603	92.1	5.4	1.9	0.5	0.1	NA	0.0 (1) *
Numeracy	2016	13084	93.6	4	1.4	0.7	0.3	0.0 (1)	NA
	2017	23465	91.5	4.9	2.3	1	0.3	0.0 (1)	NA
	2018	22007	89.6	6.4	2.9	0.9	0.1	NA	NA
	2019	20702	90.1	6.5	2.7	0.6	0.0 (10)	NA	NA
	2020	16313	92.3	5.8	1.7	0.2	0.0 (3)	NA	NA
	2021	20720	96.7	3	0.4	0.0 (2)	NA	NA	NA
	2016–21	116291	92.2	5.2	2	0.6	0.1	0.0 (2)	NA

*The zero percentages are rounded and relate to the small numbers shown in brackets.

Table 5 shows that of the 20 891 candidates who attempted the literacy component for the first time in 2021, 90.6% achieved the standard at their first sitting, compared to 88.7% in 2019 and 89.6 in 2020. For numeracy in 2021, 90.7% of the 20 720 candidates achieved the standard at their first sitting, compared to 87.7% in 2019 and 89.7% in 2020.

Under the standard resit allowance, candidates who do not achieve the standard on their first attempt are permitted up to two additional sittings. In a small number of cases, more than two resits may be granted in exceptional circumstances. The numbers of resitting candidates in 2021 for both literacy and numeracy increased from 2020, while pass rates decreased. For literacy, in 2018 there were 2836 resits (pass rate 49%), in 2019 there were 3029 resits (pass rate 52%) and in 2020 there were 2237 resits (pass rate 55%). For literacy in 2021, there were 2685 resits (pass rate 53%). For numeracy, in 2018 there were 2853 resits (pass rate 42%), in 2019 there were 3107 resits (pass rate 49%) and in 2020 there were 2512 resits (pass rate 61%). For numeracy in 2021, there were 2572 resits (pass rate 57%).

Table 5: Number of sittings and pass rates by attempt and by test window in 2021

		TW1	Pass rate	TW2	Pass rate	TW3	Pass rate	TW4	Pass rate	Total	Pass rate
Literacy	First sitting	5059	90.5	5429	90.5	4973	91.4	5430	90.2	20891	90.6
	Second sitting	489	60.3	398	53.0	410	61.5	495	54.3	1792	57.3
	Third sitting	172	46.5	165	44.8	126	49.2	194	49.5	657	47.5
	Fourth sitting	41	56.1	42	54.8	37	43.2	70	60.0	190	54.7
	Fifth sitting	12	41.7	7	85.7	9	66.7	18	33.3	46	50.0
	Total sittings	5773		6041		5555		6207		23576	
Numeracy	First sitting	5025	90.8	5272	90.1	4984	91.5	5439	90.6	20720	90.7
	Second sitting	506	59.9	367	54.0	353	59.5	494	56.3	1720	57.5
	Third sitting	179	56.4	171	53.8	100	59.0	191	55.5	641	55.9
	Fourth sitting	41	73.2	44	70.5	27	63.0	61	67.2	173	68.8
	Fifth sitting	9	77.8	12	75.0	6	66.7	10	90.0	37	78.4
	Sixth sitting	NA	NA	NA	NA	NA	NA	1	0.0	1	0.0
	Totals sittings	5760		5866		5470		6196		23292	

Candidates' results for 2021 are described in more detail in Section 3 of this report.

1.3 Test design and in-test trialling for replenishment of item pool

In the first half of 2021, in test windows 1 and 2, there were 23 equivalent test forms for literacy and 18 equivalent test forms for numeracy. In the second half of 2021, in test windows 3 and 4, a proportion of the test forms were refreshed using items that were trialled in 2020. In these test windows, there were 18 equivalent test forms for literacy and 18 equivalent test forms for numeracy.

For literacy, each test form comprised five 12-item clusters (C1 to C5) totalling 60 items. For numeracy, the test was divided into two sections as follows: section 1 ('calculator available' – CA) comprising four 12-item clusters (48 items), and section 2 ('calculator not available' – CN) comprising two 6-item clusters (12 items), totalling 60 items.

In order to augment and replenish the pool of items available for the test in future administrations, items were trial-tested within the live instruments. These items were administered in small clusters (one to five items) and did not contribute to the candidates' scores. Eighty-eight (88) literacy items and 84 numeracy items were administered in the in-test trial clusters. Approximately 600 candidates were administered each of these trial items.

Examples of one literacy test and one numeracy test with in-test trial clusters are shown below.

Literacy	C1	C2	C3	C4	C5	Trial C
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	Section 1					Section 2		
Numeracy	CA1	CA2	CA3	CA4	Trial CA	CN1	CN2	Trial CN

In the second half of 2021 and the first half of 2022, 88 Phase 7 literacy items and 84 Phase 7 numeracy items were in-test trialled. Of these, 3 literacy items and 2 numeracy items were judged to have unsatisfactory psychometric properties and were deleted from the pool. The remaining items were well-targeted for difficulty across the three reporting bands as required by the test construct and assessment framework, thereby ensuring adequate test replenishment.

The Phase 7 trial items revealed some differential item functioning (DIF). For example, for the Age variable, only 3 literacy trial items favoured candidates aged 17–25 years, while 5 literacy trial items favoured candidates aged 26+ years. For numeracy, 4 items favoured candidates aged 17–25 years, while 2 items favoured candidates aged 26+ years. For the Gender variable, 6 literacy trial items favoured male candidates, and only 3 literacy trial items favoured female candidates. For numeracy, 4 trial items favoured males and 7 favoured females. For more detail, see Section 5.

1.4 Comparison of 2016, 2017, 2018, 2019, 2020, and 2021 results

Table 6 shows that the mean scale scores of first-attempt candidates changed little across the six years. Following a steady decline in pass rates for both domains, the pass rate for both increased slightly in 2020 and again in 2021. For literacy, from 2016 to 2019, the pass rates of first-attempt candidates declined from 93.3% in 2016 to 89.2% in 2017, appeared to stabilise in 2018 and 2019 to 87.5% and 88.7% respectively, increased to 89.6% in 2020 and then to 90.6% in 2021. For numeracy, from 2016 to 2019, the pass rates of first-attempt candidates also declined, from 92.4% in 2016 to 90.0% in 2017, appeared to stabilise in 2018 and 2019 to 87.4% and 87.7% respectively, increasing to 89.7% in 2020 and then to 90.7% in 2021. The decline in the pass rates of first-attempt candidates from 2016 to 2018 reflects the introduction of the revised standards mid-2017.

The number of second-, third-, and fourth-attempt candidates increased from 2020 for both components of the tests. For the fifth-attempt candidates there was a decline for numeracy and an increase for literacy (small numbers for both). The mean scale scores of several resit cohorts overall and across several strands for each component increased from 2020 to 2021 and is reported in Table 31, Section 3.

Table 6: Comparison of performance by attempt number, overall and by subscale

Component	Attempt number	Whole test and subscale	2016			2017			2018			2019			2020			2021		
			Number of sittings	Mean	Pass rate	Number of sittings[1] ²	Mean	Pass rate	Number of sittings[2] ³	Mean	Pass rate	Number of sittings	Mean	Pass rate	Number of sittings	Mean	Pass rate	Number of sittings	Mean	Pass rate
Literacy	1st	Overall	1308 2	117.5	93.3 3	23387	117.0	89.2	22061	116.8	87.5	2067 0	116.8	88.7	1651 1	116.9	89.6	2089 1	117.4	90.6
		Reading		117.4			117.1			117.1			117.1			117.0			117.5	
		Technical skills of writing		117.5			116.9			116.2			116.3			116.9			117.3	
	2nd	Overall	340	107.5	67.9 4	1488	106.5	53.5	2022	106.6	51.3	2044	106.9	55.2	1487	107.2	57.4	1792	107.4	57.3
		Reading		107.2			106.6			106.6			107.2			107.0			107.3	
		Technical skills of writing		107.9			106.1			106.6			106.5			107.9			107.8	
	3rd	Overall	25	107.7	76.0 0	297	105.4	40.1	647	106.0	46.1	748	106.3	47.2	546	106.7	53.3	657	106.1	47.5
		Reading		107.3			105.5			105.6			106.3			106.0			105.8	
		Technical skills of writing		108.5			105.1			106.6			106.5			108.0			106.7	
	4th	Overall	0	NA	NA	34	106.1	41.2	158	104.8	32.9	201	106.4	45.3	171	106.7	46.8	190	107.2	54.7
		Reading		NA	NA		105.4			104.2			105.8			105.9			106.7	
		Technical skills of writing		NA	NA		107.4			105.8			107.8			108.3			108.1	
	5th	Overall	0	NA	NA	0	NA	NA	13	105.0	23.1	36	106.1	44.4	33	107.5	60.6	46	106.1	50.0
		Reading		NA	NA		NA	NA		104.7			106.0			107.3			105.4	
		Technical skills of writing		NA	NA		NA	NA		105.2			106.6			107.8			107.2	
	6th ⁴	Overall	0	NA	NA	0	NA	NA	1	NA	NA	0	NA	NA	0	NA	NA	0	NA	NA

² Sittings beyond the first attempt include candidates who first registered in previous years

³ Sittings beyond the first attempt include candidates who first registered in previous years

⁴ The 6th and 7th attempts indicated are for candidates whose test attempts have been reset after meeting the 'test reset' policy requirement but have been recorded as a 6th or 7th attempt, or candidates who created multiple accounts using slightly different names or other personal details, sat the tests and have been detected afterwards.

		Reading		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
		Technical skills of writing		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
	7th	Overall	0	NA	NA	0	NA	NA	0	NA	NA	1	NA	NA	0	NA	NA	0	NA	NA
		Reading		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
		Technical skills of writing		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
Numeracy	1st	Overall	13084	122.4	92.4	23464	123.0	90.0	22007	122.8	87.4	20702	122.7	87.7	16313	124.3	89.7	20720	125.3	90.7
		Number & algebra		121.8			122.3			122.5			123.2			125.0			125.6	
		Measurement & geometry		121.5			122.8			122.6			121.6			122.7			124.4	
		Statistics & probability		122.7			123.0			122.6			122.2			123.6			124.5	
		Calculator available		122.5			123.2			123.1			122.9			124.4			125.5	
		Calculator not available		119.3			119.7			120.6			121.7			123.4			124.1	
	2nd	Overall	405	107.5	55.6	1366	108.1	49.9	1995	108.6	45.3	2058	109.1	49.3	1578	110.4	55.6	1720	110.5	57.5
		Number & algebra		106.1			106.4			107.1			108.1			109.7			109.6	
		Measurement & geometry		108.0			109.1			109.1			109.3			110.3			110.6	
		Statistics & probability		109.6			109.9			110.7			110.8			111.8			111.8	
		Calculator available		108.6			109.4			109.8			109.7			111.0			111.3	
		Calculator not available		103.7			103.4			103.9			106.8			108.3			107.4	
	3rd	Overall	40	105.4	37.5	340	107.3	41.5	658	107.7	36.8	776	109.0	49.5	673	110.9	57.4	640	110.7	55.9
		Number & algebra		103.9			105.7			106.2			108.3			110.8			110.1	
		Measurement & geometry		106.8			108.2			108.4			109.2			110.3			110.3	
		Statistics & probability		107.0			108.9			109.7			110.3			111.8			111.7	
		Calculator available		106.2			108.3			108.5			109.6			111.3			111.3	
		Calculator not available		102.3			103.4			104.6			106.9			109.4			108.3	
	4th	Overall		NA	NA	48	106.0	35.4	175	107.3	31.4	231	110.3	50.2	212	112.6	62.3	173	113.0	68.8

		Number & algebra	2[3]5	NA	NA		104.1			106.0			109.9			113.1			113.1	
		Measurement & geometry		NA	NA		107.2			107.9			110.7			111.3			111.8	
		Statistics & probability		NA	NA		108.2			108.8			111.0			112.7			113.6	
		Calculator available		NA	NA		106.8			107.9			110.5			112.4			113.5	
		Calculator not available		NA	NA		103.5			104.8			109.6			113.2			111.6	
	5th	Overall	0	NA	NA	0	NA	NA	28	109.3	35.7	41	110.6	46.3	49	114.9	69.4	37	112.7	78.4
		Number & algebra		NA	NA		NA	NA		107.5			111.2			114.6			112.9	
		Measurement & geometry		NA	NA		NA	NA		109.9			110.3			113.8			112.2	
		Statistics & probability		NA	NA		NA	NA		112.0			109.7			115.5			112.8	
		Calculator available		NA	NA		NA	NA		109.9			110.3			114.7			113.0	
		Calculator not available		NA	NA		NA	NA		106.3			111.4			115.9			111.5	
	6th	Overall	0	NA	NA	0	NA	NA	1	NA	NA	0	NA	NA	0	NA	NA	1	NA	NA
		Number & algebra		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
		Measurement & geometry		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
		Statistics & probability		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
		Calculator available		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA
		Calculator not available		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA

⁵ Not reported due to small (n=2) group size

2. TEST ADMINISTRATION WINDOWS 1–4 IN 2021

This section covers the demographic characteristics of candidates who sat the test in 2021. Details on test centres, remote proctoring and other administrative matters can be found in each of the four 2021 test window administration reports submitted separately throughout 2021.

2.1 Demographic characteristics of candidates

Just over 24 000 candidates from 47 institutions sat the test in 2021, the same institutions as in 2020.

Alphacrucis College	Queensland University of Technology
Australian Catholic University	RMIT University
Australian College of Physical Education	Southern Cross University
Avondale University	Swinburne University of Technology
Central Queensland University	Tabor Adelaide
Charles Darwin University	The University of Adelaide
Charles Sturt University	The University of Melbourne
Christian Heritage College	The University of New England
Curtin University	The University of New South Wales
Deakin University	The University of Newcastle
Eastern College Australia	The University of Notre Dame Australia
Edith Cowan University	The University of Queensland
Excelsia College	The University of Sydney
Federation University Australia	The University of Western Australia
Flinders University	University of Canberra
Griffith University	University of South Australia
Holmesglen TAFE	University of Southern Queensland
James Cook University	University of Tasmania
La Trobe University	University of Technology Sydney
Macquarie University	University of the Sunshine Coast
Melbourne Polytechnic	University of Wollongong
Monash University	Victoria University
Montessori World Educational Institute	Western Sydney University
Murdoch University	

Table 7 shows the demographic characteristics of all candidates who sat the test in 2021. This includes candidates who first registered for the test in 2021, plus those who registered in the period 2016–2020 and resat the test in 2021. It shows that the majority of candidates (73%)⁶ were female, resided in metropolitan areas (81%) and most (64%) were in the age group 17–25. The majority of candidates (61%) were enrolled in an undergraduate course. The greatest number of undergraduate candidates were those in their third year. Over half of the postgraduate candidates who sat the test in 2021 were those in their first year. In regard to course category, candidates were mainly enrolled in primary teacher education courses (42%), followed by secondary (40%), other teacher education courses (11%), early childhood (7%) and special education (less than 1%).

The proportion of international candidates attempting the test in 2021 was 5–6%, less than in 2020. The proportion of candidates who identify as Indigenous and the proportion from provincial areas were very similar to previous years at 1.7% and 18% respectively.

Table 7: Demographic characteristics of unique candidates who sat the test in 2021 (including 2016–20 resitters)

Characteristic	Category	Literacy		Numeracy	
		N	%	N	%
Gender	Female	16329	72.7	16298	73.1
	Male	6097	27.2	5963	26.8
	Indeterminate/intersex	20	0.1	23	0.1
Age	17–25	14253	63.5	14169	63.6
	26–30	3593	16.0	3542	15.9
	31–35	1740	7.8	1708	7.7
	36–40	1244	5.5	1222	5.5
	41–45	828	3.7	828	3.7
	46+	788	3.5	815	3.7
International Students	No	21158	94.3	21188	95.1
	Yes	1288	5.7	1096	4.9
English as a First Language	Yes	19330	86.1	19482	87.4
	No	3116	13.9	2802	12.6
Indigenous	No	21807	97.2	21626	97.0
	Yes	388	1.7	396	1.8
	Not disclosed	251	1.1	262	1.2
Residential Area ⁷	Metropolitan areas	18078	80.5	17982	80.7
	Provincial areas	3985	17.8	3924	17.6
	Remote areas	152	0.7	150	0.7
	International	188	0.8	182	0.8
	Invalid or Missing	43	0.2	46	0.2
Program Type	Undergraduate	13668	60.9	13624	61.1
	Postgraduate	8678	38.7	8576	38.5
	Pathway	100	0.4	84	0.4
Program Type by Year Level	Undergraduate first year	1515	6.7	1492	6.7
	Undergraduate second year	3536	15.8	3517	15.8
	Undergraduate third year	4514	20.1	4403	19.8
	Undergraduate fourth year	3313	14.8	3402	15.3
	Undergraduate fifth year or above	441	2.0	462	2.1
	Undergraduate graduated	349	1.6	348	1.6
	Postgraduate first year	4741	21.1	4669	21.0
	Postgraduate second year	2977	13.3	2926	13.1

⁶ In the descriptive text accompanying the tables throughout the report, most percentages are rounded to the nearest whole per cent.

⁷ The residential area classification is based on the Australian Statistical Geography Standard [ASGS] and is mapped from a candidate's jurisdiction and postcode. 'Metropolitan' areas include Major cities of Australia, Major cities to Inner and Outer Regional Australia. 'Provincial' (or Regional) areas include Inner and Outer Regional Australia. 'Remote' areas include Remote to Very Remote Australia.

	Postgraduate third year	281	1.3	289	1.3
	Postgraduate fourth year	207	0.9	203	0.9
	Postgraduate fifth year or above	228	1.0	242	1.1
	Postgraduate graduated	244	1.1	247	1.1
	Pathway first year	85	0.4	74	0.3
	Pathway second year	8	0.0	4	0.0
	Pathway third year	2	0.0	2	0.0
	Pathway fifth year or above	0	NA	0	NA
	Pathway graduated	5	0.0	4	0.0
Course Category	Teacher education: early childhood	1546	6.9	1464	6.6
	Teacher education: primary	9396	41.9	9382	42.1
	Teacher education: secondary	8866	39.5	8853	39.7
	Teacher education: special education	140	0.6	134	0.6
	Teacher education: other	2498	11.1	2451	11.0

The following demographic analysis separates the 2021 candidates into five groups for each component of the test: first-attempt candidates, second-attempt candidates (first resit), third-attempt candidates (second resit), fourth-attempt candidates (third resit), fifth-attempt candidates (fourth resit) and candidates who achieved no standard.

Table 8 shows the demographic characteristics of the first-attempt candidates for each component of the test in 2021. The demographic characteristics of this cohort are very similar to those described in Table 7 above.

Table 8: Demographic characteristics of first-attempt candidates who sat the test in 2021

Characteristic	Category	Literacy		Numeracy	
		N	%	N	%
Gender	Female	15037	72.0	14885	71.8
	Male	5834	27.9	5812	28.1
	Indeterminate/intersex	20	0.1	23	0.1
Age	17–25	13285	63.6	13204	63.7
	26–30	3306	15.8	3270	15.8
	31–35	1625	7.8	1593	7.7
	36–40	1165	5.6	1149	5.5
	41–45	783	3.7	772	3.7
	46+	727	3.5	732	3.5
International Students	No	19852	95.0	19688	95.0
	Yes	1039	5.0	1032	5.0
English as a First Language	Yes	18296	87.6	18187	87.8
	No	2595	12.4	2533	12.2
Indigenous	No	20291	97.1	20121	97.1
	Yes	353	1.7	354	1.7
	Not disclosed	247	1.2	245	1.2
Residential Area	Metropolitan areas	16798	80.4	16677	80.5
	Provincial areas	3740	17.9	3689	17.8
	Remote areas	136	0.7	136	0.7
	International	181	0.9	181	0.9
	Invalid or Missing	36	0.2	37	0.2
Program Type	Undergraduate	12524	59.9	12425	60.0
	Postgraduate	8279	39.6	8213	39.6
	Pathway	88	0.4	82	0.4
Program Type by Year Level	Undergraduate first year	1518	7.3	1494	7.2
	Undergraduate second year	3472	16.6	3445	16.6
	Undergraduate third year	4198	20.1	4126	19.9
	Undergraduate fourth year	2799	13.4	2824	13.6
	Undergraduate fifth year or above	310	1.5	316	1.5

	Undergraduate graduated	227	1.1	220	1.1
	Postgraduate first year	4714	22.6	4648	22.4
	Postgraduate second year	2753	13.2	2744	13.2
	Postgraduate third year	247	1.2	248	1.2
	Postgraduate fourth year	174	0.8	173	0.8
	Postgraduate fifth year or above	202	1.0	206	1.0
	Postgraduate graduated	189	0.9	194	0.9
	Pathway first year	80	0.4	74	0.4
	Pathway second year	4	0.0	4	0.0
	Pathway third year	1	0.0	1	0.0
	Pathway fifth year or above	0	0.0	0	0.0
	Pathway graduated	3	0.0	3	0.0
Course Category	Teacher education: early childhood	1294	6.2	1248	6.0
	Teacher education: primary	8722	41.8	8675	41.9
	Teacher education: secondary	8479	40.6	8446	40.8
	Teacher education: special education	133	0.6	125	0.6
	Teacher education: other	2263	10.8	2226	10.7

In 2021, the number of resits increased from 2020 numbers. In 2021, there were 2685 resits of the literacy component (up from 2237 resits in 2020) and 2573 resits (by 2206 candidates) of the numeracy component (slightly down from 2512 resits in 2020). For literacy, there were 1792 second attempts, 657 third attempts, 190 fourth attempts and 46 fifth attempts (compared to 1487, 546, 171 and 33 respectively in 2020). For numeracy, the resit numbers were 1720 second attempts, 641 third attempts, 173 fourth attempts and 39 fifth attempts (compared to 1578, 673, 212 and 49 respectively in 2020). These resit numbers included candidates who did not achieve one standard or more in 2016, 2017, 2018, 2019 and 2020.

Table 9 shows the demographic characteristics of the candidates who sat the test twice (first resit) during 2021. It shows that, as for previous years, the overwhelming majority of these resit candidates were female (82% for literacy, 90% for numeracy) and mostly in the age group 17–25 (67% for literacy, 64% for numeracy). The proportion of females in the second-attempt cohort exceeded the proportion in the first-attempt cohort (72%). The majority of second-attempt candidates were enrolled in an undergraduate course (72% for literacy, 74% for numeracy), similar to 2020 (73% and 74% respectively). These proportions exceed the proportion of undergraduate candidates in the first-attempt cohort (60%). Table 9 also shows that for literacy, the proportion of second-attempt candidates for whom English was not their first language was more than double that of first-attempt candidates (30% compared to 12%). For numeracy, the proportion was only slightly higher (17% compared to 12%). It can also be seen that the proportion of candidates from early childhood courses in the second-attempt cohort was 14% for literacy, nearly double the proportion for literacy (6%) in the first-attempt cohort. For numeracy the proportions were 13% compared to 6% respectively.

Table 9: Demographic characteristics of second-attempt candidates⁸

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitzings	N	%	% of Total Sitzings
Gender	Female	1460	81.5	6.2	1544	89.8	6.6
	Male	331	18.5	1.4	176	10.2	0.8
	Indeterminate/intersex	1	0.1	0.0	0	0.0	0.0
Age	17–25	1204	67.2	5.1	1104	64.2	4.7
	26–30	260	14.5	1.1	267	15.5	1.1
	31–35	128	7.1	0.5	117	6.8	0.5
	36–40	96	5.4	0.4	92	5.3	0.4
	41–45	53	3.0	0.2	64	3.7	0.3
	46+	51	2.8	0.2	76	4.4	0.3
International Students	No	1533	85.5	6.5	1646	95.7	7.1
	Yes	259	14.5	1.1	74	4.3	0.3
English as a First Language	Yes	1260	70.3	5.3	1436	83.5	6.2
	No	532	29.7	2.3	284	16.5	1.2
Indigenous	No	1728	96.4	7.3	1660	96.5	7.1
	Yes	39	2.2	0.2	43	2.5	0.2
	Not disclosed	25	1.4	0.1	17	1.0	0.1
Residential Area	Metropolitan areas	1466	81.8	6.2	1427	83.0	6.1
	Provincial areas	287	16.0	1.2	267	15.5	1.1
	Remote areas	13	0.7	0.1	18	1.0	0.1
	International	18	1.0	0.1	2	0.1	0.0
	Invalid or Missing	8	0.4	0.0	6	0.3	0.0
Program Type	Undergraduate	1294	72.2	5.5	1272	74.0	5.5
	Postgraduate	479	26.7	2.0	434	25.2	1.9
	Pathway	19	1.1	0.1	14	0.8	0.1
Program Type by Year Level	Undergraduate first year	45	2.5	0.2	26	1.5	0.1
	Undergraduate second year	155	8.6	0.7	152	8.8	0.7
	Undergraduate third year	433	24.2	1.8	353	20.5	1.5
	Undergraduate fourth year	505	28.2	2.1	571	33.2	2.5
	Undergraduate fifth year or above	81	4.5	0.3	90	5.2	0.4
	Undergraduate graduated	75	4.2	0.3	80	4.7	0.3
	Postgraduate first year	128	7.1	0.5	90	5.2	0.4
	Postgraduate second year	228	12.7	1.0	220	12.8	0.9
	Postgraduate third year	33	1.8	0.1	33	1.9	0.1
	Postgraduate fourth year	28	1.6	0.1	24	1.4	0.1
	Postgraduate fifth year or above	20	1.1	0.1	31	1.8	0.1
	Postgraduate graduated	42	2.3	0.2	36	2.1	0.2
	Pathway first year	13	0.7	0.1	11	0.6	0.0
	Pathway second year	3	0.2	0.0	1	0.1	0.0
	Pathway third year	1	0.1	0.0	1	0.1	0.0
	Pathway fifth year or above	0	0.0	0.0	0	0.0	0.0
	Pathway graduated	2	0.1	0.0	1	0.1	0.0
Course Category	Teacher education: early childhood	243	13.6	1.0	217	12.6	0.9
	Teacher education: primary	800	44.6	3.4	793	46.1	3.4
	Teacher education: secondary	469	26.2	2.0	448	26.0	1.9
	Teacher education: special education	10	0.6	0.0	10	0.6	0.0
	Teacher education: other	270	15.1	1.1	252	14.7	1.1

⁸ Includes candidates who registered from 2016 to 2019. Some unsuccessful candidates from Table 8 are included.

Table 10 shows the demographic characteristics of the third-attempt candidates in 2021. As for the second-attempt candidates, this cohort tended to be mostly female, undergraduates, and aged 17–25. As for the second-attempt cohort, these categories are more highly represented than in the first-attempt cohort.

Table 10 also shows that, for literacy, English was not the first language of 44% of the third-attempt candidates, whereas the proportion was only 12% for the first-attempt candidates (as shown in Table 8). For numeracy, English was not the first language of 18% of the third-attempt candidates, also higher than the proportion (12%) of the first-attempt candidates. It can also be seen that the proportion of candidates from early childhood courses in the third-attempt cohort was 19% for literacy, more than triple the proportion for literacy (6%) in the first-attempt cohort. The proportion of candidates from early childhood courses in the third-attempt cohort for numeracy was 15%, more than double that of the first-attempt cohort (6%).

Table 10: Demographic characteristics of third-attempt candidates⁹

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sitings	N	%	% of Total Sitings
Gender	Female	551	83.9	2.3	585	91.3	2.5
	Male	105	16.0	0.4	56	8.7	0.2
	Indeterminate/intersex	1	0.2	0.0	0	0.0	0.0
Age	17–25	388	59.1	1.6	406	63.3	1.7
	26–30	138	21.0	0.6	104	16.2	0.4
	31–35	51	7.8	0.2	44	6.9	0.2
	36–40	33	5.0	0.1	32	5.0	0.1
	41–45	23	3.5	0.1	22	3.4	0.1
	46+	24	3.7	0.1	33	5.1	0.1
International Students	No	496	75.5	2.1	619	96.6	2.7
	Yes	161	24.5	0.7	22	3.4	0.1
English as a First Language	Yes	371	56.5	1.6	525	81.9	2.3
	No	286	43.5	1.2	116	18.1	0.5
Indigenous	No	642	97.7	2.7	617	96.3	2.6
	Yes	11	1.7	0.0	18	2.8	0.1
	Not disclosed	4	0.6	0.0	6	0.9	0.0
Residential Area	Metropolitan areas	537	81.7	2.3	522	81.4	2.2
	Provincial areas	102	15.5	0.4	108	16.8	0.5
	Remote areas	4	0.6	0.0	8	1.2	0.0
	International	12	1.8	0.1	0	0.0	0.0
	Invalid or Missing	2	0.3	0.0	3	0.5	0.0
Program Type	Undergraduate	437	66.5	1.9	498	77.7	2.1
	Postgraduate	218	33.2	0.9	142	22.2	0.6
	Pathway	2	0.3	0.0	1	0.2	0.0
Program Type by Year Level	Undergraduate first year	6	0.9	0.0	2	0.3	0.0
	Undergraduate second year	26	4.0	0.1	20	3.1	0.1
	Undergraduate third year	84	12.8	0.4	78	12.2	0.3
	Undergraduate fourth year	224	34.1	1.0	261	40.7	1.1
	Undergraduate fifth year or above	44	6.7	0.2	66	10.3	0.3
	Undergraduate graduated	53	8.1	0.2	71	11.1	0.3
	Postgraduate first year	22	3.3	0.1	10	1.6	0.0
	Postgraduate second year	128	19.5	0.5	70	10.9	0.3

⁹ Includes candidates who registered from 2016 to 2019. Some unsuccessful candidates from Tables 8 and 9 are included.

	Postgraduate third year	14	2.1	0.1	16	2.5	0.1
	Postgraduate fourth year	16	2.4	0.1	13	2.0	0.1
	Postgraduate fifth year or above	13	2.0	0.1	13	2.0	0.1
	Postgraduate graduated	25	3.8	0.1	20	3.1	0.1
	Pathway first year	1	0.2	0.0	1	0.2	0.0
	Pathway second year	1	0.2	0.0	0	0.0	0.0
	Pathway third year	0	0.0	0.0	0	0.0	0.0
	Pathway fifth year or above	0	0.0	0.0	0	0.0	0.0
	Pathway graduated	0	0.0	0.0	0	0.0	0.0
Course Category	Teacher education: early childhood	127	19.3	0.5	99	15.4	0.4
	Teacher education: primary	258	39.3	1.1	283	44.1	1.2
	Teacher education: secondary	171	26.0	0.7	166	25.9	0.7
	Teacher education: special education	3	0.5	0.0	3	0.5	0.0
	Teacher education: other	98	14.9	0.4	90	14.0	0.4

Table 11 shows demographic characteristics of the small number of candidates (163 literacy, 158 numeracy) who were authorised to sit the test for the fourth time in 2021. Again, this cohort was mostly female candidates (86% literacy and 91% numeracy). For literacy, the proportions of candidates in this cohort who were international students (26%) or for whom English was not their first language (41%) were considerably higher than the proportions of the first-attempt cohort (5% and 12% respectively).

Table 11: Demographic characteristics of fourth-attempt candidates¹⁰

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sittings	N	%	% of Total Sittings
Gender	Female	163	85.8	0.7	158	91.3	0.7
	Male	27	14.2	0.1	15	8.7	0.1
	Indeterminate/intersex	0	0.0	0.0	0	0.0	0.0
Age	17–25	111	58.4	0.5	96	55.5	0.4
	26–30	44	23.2	0.2	35	20.2	0.2
	31–35	14	7.4	0.1	16	9.2	0.1
	36–40	8	4.2	0.0	9	5.2	0.0
	41–45	7	3.7	0.0	7	4.0	0.0
	46+	6	3.2	0.0	10	5.8	0.0
International Students	No	141	74.2	0.6	163	94.2	0.7
	Yes	49	25.8	0.2	10	5.8	0.0
English as a First Language	Yes	113	59.5	0.5	144	83.2	0.6
	No	77	40.5	0.3	29	16.8	0.1
Indigenous	No	186	97.9	0.8	167	96.5	0.7
	Yes	2	1.1	0.0	5	2.9	0.0
	Not disclosed	2	1.1	0.0	1	0.6	0.0
Residential Area	Metropolitan areas	152	80.0	0.6	154	89.0	0.7
	Provincial areas	33	17.4	0.1	18	10.4	0.1
	Remote areas	3	1.6	0.0	1	0.6	0.0
	International	2	1.1	0.0	0	0.0	0.0
	Invalid or Missing	0	0.0	0.0	0	0.0	0.0
Program Type	Undergraduate	130	68.4	0.6	123	71.1	0.5
	Postgraduate	60	31.6	0.3	50	28.9	0.2
	Pathway	0	0.0	0.0	0	0.0	0.0

¹⁰ Includes candidates who registered from 2016 to 2020. Some unsuccessful candidates from Tables 8–10 are included.

Program Type by Year Level	Undergraduate first year	0	0.0	0.0	0	0.0	0.0
	Undergraduate second year	0	0.0	0.0	1	0.6	0.0
	Undergraduate third year	7	3.7	0.0	10	5.8	0.0
	Undergraduate fourth year	70	36.8	0.3	72	41.6	0.3
	Undergraduate fifth year or above	28	14.7	0.1	22	12.7	0.1
	Undergraduate graduated	25	13.2	0.1	18	10.4	0.1
	Postgraduate first year	6	3.2	0.0	0	0.0	0.0
	Postgraduate second year	30	15.8	0.1	22	12.7	0.1
	Postgraduate third year	7	3.7	0.0	9	5.2	0.0
	Postgraduate fourth year	4	2.1	0.0	3	1.7	0.0
	Postgraduate fifth year or above	6	3.2	0.0	3	1.7	0.0
	Postgraduate graduated	7	3.7	0.0	13	7.5	0.1
	Teacher education: early childhood	34	17.9	0.1	21	12.1	0.1
Course Category	Teacher education: primary	74	38.9	0.3	86	49.7	0.4
	Teacher education: secondary	54	28.4	0.2	42	24.3	0.2
	Teacher education: special education	0	0.0	0.0	1	0.6	0.0
	Teacher education: other	28	14.7	0.1	23	13.3	0.1

In 2021, a very small number of candidates (42 for literacy, 34 for numeracy) were granted fifth attempts. While the demographic characteristics of the fifth-attempt cohort are presented in Table 12, the numbers are too small to make any meaningful observations. However, almost all of the fifth-attempt candidates were female and were undertaking a primary or secondary course.

Table 12: Demographic characteristics of fifth-attempt candidates

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sittings	N	%	% of Total Sittings
Gender	Female	42	91.3	0.2	34	91.9	0.1
	Male	4	8.7	0.0	3	8.1	0.0
	Indeterminate/intersex	0	0.0	0.0	0	0.0	0.0
Age	17–25	24	52.2	0.1	14	37.8	0.1
	26–30	11	23.9	0.0	10	27.0	0.0
	31–35	5	10.9	0.0	8	21.6	0.0
	36–40	1	2.2	0.0	0	0.0	0.0
	41–45	2	4.3	0.0	2	5.4	0.0
	46+	3	6.5	0.0	3	8.1	0.0
International Students	No	32	69.6	0.1	34	91.9	0.1
	Yes	14	30.4	0.1	3	8.1	0.0
English as a First Language	Yes	21	45.7	0.1	33	89.2	0.1
	No	25	54.3	0.1	4	10.8	0.0
Indigenous	No	45	97.8	0.2	33	89.2	0.1
	Yes	1	2.2	0.0	2	5.4	0.0
	Not disclosed	0	0.0	0.0	2	5.4	0.0
Residential Area	Metropolitan areas	43	93.5	0.2	30	81.1	0.1
	Provincial areas	3	6.5	0.0	6	16.2	0.0
	Remote areas	0	0.0	0.0	1	2.7	0.0
	International	0	0.0	0.0	0	0.0	0.0
	Invalid or Missing	0	0.0	0.0	0	0.0	0.0
Program Type	Undergraduate	26	56.5	0.1	20	54.1	0.1
	Postgraduate	20	43.5	0.1	17	45.9	0.1
	Pathway	0	0.0	0.0	0	0.0	0.0

Program Type by Year Level	Undergraduate first year	0	0.0	0.0	0	0.0	0.0
	Undergraduate second year	0	0.0	0.0	1	2.7	0.0
	Undergraduate third year	0	0.0	0.0	0	0.0	0.0
	Undergraduate fourth year	9	19.6	0.0	8	21.6	0.0
	Undergraduate fifth year or above	10	21.7	0.0	4	10.8	0.0
	Undergraduate graduated	7	15.2	0.0	7	18.9	0.0
	Postgraduate first year	2	4.3	0.0	1	2.7	0.0
	Postgraduate second year	6	13.0	0.0	7	18.9	0.0
	Postgraduate third year	1	2.2	0.0	1	2.7	0.0
	Postgraduate fourth year	1	2.2	0.0	2	5.4	0.0
	Postgraduate fifth year or above	3	6.5	0.0	1	2.7	0.0
	Postgraduate graduated	7	15.2	0.0	5	13.5	0.0
	Teacher education: early childhood	8	17.4	0.0	8	21.6	0.0
Course Category	Teacher education: primary	19	41.3	0.1	12	32.4	0.1
	Teacher education: secondary	14	30.4	0.1	12	32.4	0.1
	Teacher education: special education	0	0.0	0.0	0	0.0	0.0
	Teacher education: other	5	10.9	0.0	5	13.5	0.0

Table 13 shows the demographic characteristics for the candidates who had achieved no standard at the end of 2021. By the end of 2021, there were 2047 candidates who had not achieved the literacy standard and 1986 candidates who had not achieved the numeracy standard. The demographics of this group are similar to those of the previously described resit cohorts except that this group has the highest proportion of candidates from early childhood courses (15% for literacy, 15% for numeracy) compared to 6% of the first-attempt cohort.

Table 13: Demographic characteristics of candidates who achieved no standard by the end of 2021

Characteristic	Category	Literacy			Numeracy		
		N	%	% of Total Sittings	N	%	% of Total Sittings
Gender	Female	1714	83.7	7.3	1790	90.1	7.7
	Male	333	16.3	1.4	196	9.9	0.8
	Indeterminate/intersex	0	0.0	0.0	1	0.1	0.0
Age	17–25	1287	62.9	5.5	1244	62.6	5.3
	26–30	298	14.6	1.3	309	15.6	1.3
	31–35	167	8.2	0.7	155	7.8	0.7
	36–40	130	6.4	0.6	112	5.6	0.5
	41–45	87	4.3	0.4	67	3.4	0.3
	46+	78	3.8	0.3	100	5.0	0.4
International Students	No	1744	85.2	7.4	1915	96.4	8.2
	Yes	303	14.8	1.3	72	3.6	0.3
English as a First Language	Yes	1322	64.6	5.6	1624	81.7	7.0
	No	725	35.4	3.1	363	18.3	1.6
Indigenous	No	1982	96.8	8.4	1914	96.3	8.2
	Yes	38	1.9	0.2	56	2.8	0.2
	Not disclosed	27	1.3	0.1	17	0.9	0.1
Residential Area	Metropolitan areas	1664	81.3	7.1	1653	83.2	7.1
	Provincial areas	326	15.9	1.4	309	15.6	1.3
	Remote areas	19	0.9	0.1	18	0.9	0.1
	International	31	1.5	0.1	3	0.2	0.0
	Invalid or Missing	7	0.3	0.0	4	0.2	0.0
Program Type	Undergraduate	1507	73.6	6.4	1510	76.0	6.5

	Postgraduate	511	25.0	2.2	457	23.0	2.0
	Pathway	29	1.4	0.1	20	1.0	0.1
Program Type by Year Level	Undergraduate 1st year	199	9.7	0.8	162	8.2	0.7
	Undergraduate 2nd year	403	19.7	1.7	397	20.0	1.7
	Undergraduate 3rd year	460	22.5	2.0	437	22.0	1.9
	Undergraduate 4th year	284	13.9	1.2	344	17.3	1.5
	Undergrad 5th year or above	73	3.6	0.3	89	4.5	0.4
	Undergrad graduated	88	4.3	0.4	81	4.1	0.3
	Postgraduate 1st year	173	8.5	0.7	174	8.8	0.7
	Postgraduate 2nd year	200	9.8	0.8	167	8.4	0.7
	Postgraduate 3rd year	43	2.1	0.2	46	2.3	0.2
	Postgraduate 4th year	26	1.3	0.1	16	0.8	0.1
	Postgrad 5th year or above	21	1.0	0.1	18	0.9	0.1
	Postgraduate graduated	48	2.3	0.2	36	1.8	0.2
	Pathway 1st year	22	1.1	0.1	16	0.8	0.1
	Pathway 2nd year	3	0.1	0.0	0	0.0	0.0
	Pathway 3rd year	1	0.0	0.0	0	0.0	0.0
	Pathway 5th year or above	0	0.0	0.0	0	0.0	0.0
	Pathway graduated	3	0.1	0.0	4	0.2	0.0
Course Category	Early childhood	309	15.1	1.3	302	15.2	1.3
	Primary	893	43.6	3.8	947	47.7	4.1
	Secondary	462	22.6	2.0	418	21.0	1.8
	Special education	16	0.8	0.1	11	0.6	0.0
	Other	367	17.9	1.6	309	15.6	1.3

Those candidates who had achieved no standard by the end of 2021 had up to five attempts at the test, as shown in Table 14. It is expected that some of these candidates will resit the test again in 2022.

Table 14: Number of attempts by candidates who achieved no standard by the end of 2021

Component	Year of registration	At end of	Number of 1-attempt candidates	Number of 2-attempt candidates	Number of 3-attempt candidates	Number of 4-attempt candidates	Number of 5-attempt candidates	Number of 6-attempt candidates	Number of 7-attempt candidates
Literacy	2016	2017	137	53	20	10	0	0	0
	2016	2018	0	6	5	17	5	0	0
	2016	2019	0	3	11	5	6	0	0
	2016	2020	0	0	1	4	0	0	0
	2016	2021	0	1	2	2	1	0	0
	2017	2018	345	153	129	45	4	0	0
	2017	2019	0	24	60	46	14	0	1
	2017	2020	0	6	17	16	6	0	0
	2017	2021	0	4	10	13	3	0	0
	2018	2019	450	214	121	26	0	0	0
	2018	2020	0	19	43	32	6	0	0
	2018	2021	0	21	45	15	8	0	0
	2019	2020	447	172	81	9	1	0	0
	2019	2021	0	61	65	25	8	0	0
	2020	2021	431	200	112	18	3	0	0
	2021	2021	1194	243	52	2	0	0	0
Numeracy	2016	2017	160	77	41	9	0	0	0
	2016	2018	0	8	12	25	13	0	0
	2016	2019	0	6	8	13	6	0	0
	2016	2020	0	0	2	3	0	0	0
	2016	2021	0	2	2	2	1	1	0
	2017	2018	360	188	127	38	4	0	0
	2017	2019	0	30	54	39	15	0	0
	2017	2020	0	9	18	10	5	0	0
	2017	2021	0	4	15	6	3	0	0
	2018	2019	489	259	119	25	0	0	0
	2018	2020	0	34	56	24	9	0	0
	2018	2021	0	26	33	12	3	0	0
	2019	2020	496	185	79	13	1	0	0

	2019	2021	0	66	72	15	1	0	0
	2020	2021	426	207	95	11	0	0	0
	2021	2021	1226	203	27	0	0	0	0

Table 15 groups the location of testing into capital cities, regional cities and remote proctoring. It shows that 61% of candidates in 2021 completed the test by remote proctoring compared to 51% in 2020 and 22% in 2019. A more detailed breakdown by individual test centre may be found in Appendix 1.

Table 15: Number and proportion of first-attempt candidates who participated at test centres and by remote proctoring

Location of Testing	First Attempt			
	Literacy		Numeracy	
	N	%	N	%
Test Centres	8199	39.2	8063	38.9
– Capital Cities	7532	36.1	7419	35.8
– Regional Cities	667	3.2	644	3.1
Remote Proctoring	12692	60.8	12657	61.1
Total	20891	100	20720	100

Table 16 shows how resit candidates were distributed by location of testing in 2021. As in previous years, remote proctoring was used by greater percentages of resit candidates than for first-attempt candidates. For example, in the literacy component, while 61% of first-attempt candidates used remote proctoring in 2021, this rose to 65% of second-attempt candidates, 66% of third-attempt candidates, 75% of fourth-attempt candidates and 65% of fifth-attempt candidates. The pattern was similar for numeracy.

Table 16: Number and proportion of resit candidates who participated at test centres and by remote proctoring

Location of Testing	Second Attempt				Third Attempt				Fourth Attempt				Fifth Attempt			
	Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Test Centres	624	34.8	582	33.8	222	33.8	224	34.9	47	24.7	49	28.3	16	34.8	13	35.1
– Capital Cities	591	33.0	557	32.4	213	32.4	213	33.2	45	23.7	48	27.7	15	32.6	12	32.4
– Regional Cities	33	1.8	25	1.5	9	1.4	11	1.7	2	1.1	1	0.6	1	2.2	1	2.7
Remote Proctoring	1168	65.2	1138	66.2	435	66.2	417	65.1	143	75.3	124	71.7	30	65.2	24	64.9
Total	1792	100	1720	100	657	100	641	100	190	100	173	100	46	100	37	100

2.2 Demographic characteristics of candidates by test windows

In 2021, the number of candidates presenting at each test window for literacy were similar across the four windows. There were minimal differences between subgroups.

Table 17: Demographic characteristics of candidates by test windows – Literacy

Characteristic	Category	TW1		TW2		TW3		TW4	
		N	%	N	%	N	%	N	%
Gender	Female	4252	73.7	4274	70.7	4177	75.2	4550	73.3
	Male	1517	26.3	1759	29.1	1373	24.7	1652	26.6
	Indeterminate/intersex	4	0.1	8	0.1	5	0.1	5	0.1
Age	17–25	3603	62.4	3789	62.7	3670	66.1	3950	63.6
	26–30	921	16.0	1034	17.1	822	14.8	982	15.8
	31–35	486	8.4	451	7.5	403	7.3	483	7.8
	36–40	337	5.8	323	5.3	284	5.1	359	5.8
	41–45	226	3.9	219	3.6	188	3.4	235	3.8
	46+	200	3.5	225	3.7	188	3.4	198	3.2
International Students	No	5331	92.3	5648	93.5	5212	93.8	5863	94.5
	Yes	442	7.7	393	6.5	343	6.2	344	5.5
English as a First Language	Yes	4848	84.0	5088	84.2	4789	86.2	5336	86.0
	No	925	16.0	953	15.8	766	13.8	871	14.0
Indigenous	No	5593	96.9	5869	97.2	5396	97.1	6034	97.2
	Yes	102	1.8	90	1.5	99	1.8	115	1.9
	Not disclosed	78	1.4	82	1.4	60	1.1	58	0.9
Residential Area	Metropolitan areas	4660	80.7	4917	81.4	4454	80.2	4965	80.0
	Provincial areas	1034	17.9	1004	16.6	994	17.9	1133	18.3
	Remote areas	37	0.6	32	0.5	42	0.8	45	0.7
	International	29	0.5	75	1.2	57	1.0	52	0.8
	Invalid or Missing	13	0.2	13	0.2	8	0.1	12	0.2
Program Type	Undergraduate	3533	61.2	3338	55.3	3620	65.2	3920	63.2
	Postgraduate	2218	38.4	2681	44.4	1917	34.5	2240	36.1
	Pathway	22	0.4	22	0.4	18	0.3	47	0.8
Program Type by Year Level	Undergraduate first year	151	2.6	329	5.4	444	8.0	645	10.4
	Undergraduate second year	662	11.5	856	14.2	1041	18.7	1094	17.6
	Undergraduate third year	971	16.8	982	16.3	1342	24.2	1427	23.0
	Undergraduate fourth year	1491	25.8	909	15.0	640	11.5	567	9.1
	Undergraduate fifth year +	149	2.6	146	2.4	72	1.3	106	1.7
	Undergraduate graduated	109	1.9	116	1.9	81	1.5	81	1.3
	Postgraduate first year	722	12.5	1612	26.7	1123	20.2	1415	22.8
	Postgraduate second year	1201	20.8	778	12.9	603	10.9	563	9.1
	Postgraduate third year	88	1.5	86	1.4	50	0.9	78	1.3
	Postgraduate fourth year	62	1.1	60	1.0	42	0.8	59	1.0
	Postgraduate fifth year +	77	1.3	62	1.0	53	1.0	52	0.8
	Postgraduate graduated	68	1.2	83	1.4	46	0.8	73	1.2
	Pathway first year	14	0.2	18	0.3	18	0.3	44	0.7

	Pathway second year	6	0.1	2	0.0	0	0.0	0	0.0
	Pathway third year	1	0.0	1	0.0	0	0.0	0	0.0
	Pathway fifth year +	0	0.0	0	0.0	0	0.0	0	0.0
	Pathway graduated	1	0.0	1	0.0	0	0.0	3	0.0
Course Category	Early childhood	470	8.1	454	7.5	405	7.3	377	6.1
	Primary	2416	41.8	2407	39.8	2444	44.0	2606	42.0
	Secondary	2204	38.2	2543	42.1	2083	37.5	2357	38.0
	Special education	32	0.6	23	0.4	32	0.6	59	1.0
	Other	651	11.3	614	10.2	591	10.6	808	13.0

The observations and patterns described above for literacy candidates across the four test windows are also pertinent for numeracy, as shown in Table 18.

Table 18: Demographic characteristics of candidates by test windows – Numeracy

Characteristic	Category	TW1		TW2		TW3		TW4	
		N	%	N	%	N	%	N	%
Gender	Female	4303	74.7	4185	71.3	4128	75.5	4591	74.1
	Male	1452	25.2	1673	28.5	1337	24.4	1600	25.8
	Indeterminate/intersex	5	0.1	8	0.1	5	0.1	5	0.1
Age	17–25	3612	62.7	3700	63.1	3579	65.4	3933	63.5
	26–30	896	15.6	996	17.0	818	15.0	976	15.8
	31–35	459	8.0	424	7.2	403	7.4	492	7.9
	36–40	339	5.9	308	5.3	284	5.2	351	5.7
	41–45	238	4.1	205	3.5	188	3.4	236	3.8
	46+	216	3.8	233	4.0	198	3.6	208	3.4
International Students	No	5451	94.6	5555	94.7	5192	94.9	5953	96.1
	Yes	309	5.4	311	5.3	278	5.1	243	3.9
English as a First Language	Yes	5010	87.0	5022	85.6	4814	88.0	5480	88.4
	No	750	13.0	844	14.4	656	12.0	716	11.6
Indigenous	No	5569	96.7	5688	97.0	5321	97.3	6021	97.2
	Yes	107	1.9	105	1.8	96	1.8	114	1.8
	Not disclosed	84	1.5	73	1.2	53	1.0	61	1.0
Residential Area	Metropolitan areas	4656	80.8	4790	81.7	4389	80.2	4976	80.3
	Provincial areas	1018	17.7	959	16.3	986	18.0	1125	18.2
	Remote areas	42	0.7	36	0.6	44	0.8	42	0.7
	International	32	0.6	67	1.1	43	0.8	41	0.7
	Invalid or Missing	12	0.2	14	0.2	8	0.1	12	0.2
Program Type	Undergraduate	3570	62.0	3281	55.9	3568	65.2	3920	63.3
	Postgraduate	2174	37.7	2569	43.8	1883	34.4	2230	36.0
	Pathway	16	0.3	16	0.3	19	0.3	46	0.7
Program Type by Year Level	Undergraduate first year	150	2.6	305	5.2	436	8.0	631	10.2
	Undergraduate second year	663	11.5	842	14.4	1021	18.7	1093	17.6
	Undergraduate third year	939	16.3	941	16.0	1296	23.7	1391	22.4
	Undergraduate fourth year	1549	26.9	917	15.6	651	11.9	619	10.0
	Undergraduate fifth year +	154	2.7	159	2.7	82	1.5	103	1.7
	Undergraduate graduated	115	2.0	117	2.0	82	1.5	83	1.3
	Postgraduate first year	710	12.3	1541	26.3	1090	19.9	1408	22.7

	Postgraduate second year	1160	20.1	738	12.6	595	10.9	570	9.2
	Postgraduate third year	92	1.6	87	1.5	47	0.9	81	1.3
	Postgraduate fourth year	70	1.2	52	0.9	40	0.7	53	0.9
	Postgraduate fifth year +	76	1.3	75	1.3	53	1.0	50	0.8
	Postgraduate graduated	66	1.1	76	1.3	58	1.1	68	1.1
	Pathway first year	10	0.2	13	0.2	19	0.3	44	0.7
	Pathway second year	3	0.1	2	0.0	0	0.0	0	0.0
	Pathway third year	2	0.0	0	0.0	0	0.0	0	0.0
	Pathway fifth year +	0	0.0	0	0.0	0	0.0	0	0.0
	Pathway graduated	1	0.0	1	0.0	0	0.0	2	0.0
Course Category	Early childhood	461	8.0	403	6.9	376	6.9	353	5.7
	Primary	2403	41.7	2360	40.2	2444	44.7	2643	42.7
	Secondary	2203	38.2	2507	42.7	2038	37.3	2366	38.2
	Special education	33	0.6	20	0.3	38	0.7	48	0.8
	Other	660	11.5	576	9.8	574	10.5	786	12.7

Table 19 and Table 20 show the numbers and proportions of candidates participating in test centres and by remote proctoring in each test window for literacy and numeracy respectively. As with 2020, in 2021 a large percentage of candidates participated by remote proctoring, particularly in test windows 3 and 4.

A more detailed breakdown by test centre can be found in Appendix 2.

Table 19: Number and proportion of candidates in test centres and by remote proctoring by test window – literacy

Location of Testing	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Test Centres	3076	53.3	3231	53.5	1568	28.2	1233	19.9
– Capital Cities	2983	51.7	2760	45.7	1458	26.2	1195	19.3
– Regional Cities	93	1.6	471	7.8	110	2.0	38	0.6
Remote Proctoring	2697	46.7	2810	46.5	3987	71.8	4974	80.1
Total	5773	100	6041	100	5555	100	6207	100

Table 20: Number and proportion of candidates in test centres and by remote proctoring by test window – numeracy

Location of Testing	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Test Centres	3043	52.8	3112	53.1	1515	27.7	1261	20.4
– Capital Cities	2953	51.3	2662	45.4	1401	25.6	1233	19.9
– Regional Cities	90	1.6	450	7.7	114	2.1	28	0.5
Remote Proctoring	2717	47.2	2754	46.9	3955	72.3	4935	79.6
Total	5760	100	5866	100	5470	100	6196	100

2.3 Accessibility and accommodations

In 2021, testing conditions were modified to accommodate 674 candidates who required reasonable adjustments. This was an increase of 21% on the 555 candidates in 2020. Accessible versions of the test were also available for candidates who required supportive technology, such as a screen reader. The online accessible versions of the test were used on several occasions in 2021. Seven candidates were provided with a paper version of the test in 2021, with four of those sitting in the November 2021 test window. As in previous years, there was a significant increase in the number of requests to accommodate anxiety disorder and Attention Hyper Activity Disorder. The decline in requests due to dyslexia seen previously was not evident in 2021. Table 21 indicates the number of accommodations made for the most common conditions. A complete list of conditions follows the table.

Table 21: Largest accommodation group

Condition	Literacy						Numeracy					
	2016	2017	2018	2019	2020	2021	2016	2017	2018	2019	2020	2021
Anxiety disorder (inc. panic attacks and test anxiety)	3	28	30	72	143	219	5	31	50	151	230	302
Dyslexia	9	28	48	31	27	35	9	25	57	36	26	41
Diabetes	11	8	12	2	4	13	10	9	13	3	7	9
Epilepsy/Seizures	1	5	3	2	0	2	2	6	3	2	3	5
Attention Hyper Activity Disorder	1	5	6	2	10	25	1	5	6	4	10	31
Hearing impairment	2	5	1	2	6	4	1	4	5	2	4	3
Visual impairment/eye conditions	6	4	7	16	12	13	6	5	4	13	11	13
Dyscalculia	NA	NA	NA	NA	NA	3	2	7	2	8	5	7

Types of conditions:

- Acquired/Traumatic Brain Injury
- Adjustment Disorder
- Anxiety, Depression, Panic Attacks
- Asperger's Syndrome (High functioning – ASD)
- Asthma
- Attention Deficit Hyperactivity Disorder (ADHD) / Attention Deficit Disorder (ADD)
- Autoimmune Disorder / Crohn's Disease
- Auditory Processing Disorder and Visual-Perceptual Dysfunction (Scotopic Sensitivity / Irlen Syndrome)
- Auditory-Verbal Memory Disorder / Language Learning Disability
- Autism Spectrum Disorder
- Bipolar Disorder
- Cancer-related health conditions
- Cerebral Palsy
- Chronic Fatigue Syndrome
- Chronic Pain
- Congenital Nystagmus (Eye Disorder)
- Diabetes

- Dyslexia, Dyscalculia
- Endometriosis
- Epilepsy
- Fibromyalgia
- Functional Neurological Disorder (FND)
- Hypotension
- Irritable Bowel Syndrome
- Irlen Syndrome
- Low Working Memory
- Migraine
- Multiple Sclerosis
- Narcolepsy
- Nerve pain
- Neurocysticercosis
- Obsessive Compulsive Disorder and Pronounced Exam Phobia
- Osteomyelitis
- Parkinson's Disease
- Pregnancy-related health conditions
- Profoundly Deaf
- Pulmonary Hypertension
- Psychotic Illness
- PTSD
- Schizophrenia
- Scoliosis
- Spinal Stenosis
- Stroke
- Temporary physical conditions – e.g. broken shoulder, broken wrist, back injury, surgery
- Tourette Syndrome
- Turners Syndrome
- Visual Impairment / Legally Blind
- Wolf White Parkinson Syndrome

Types of accommodations granted:

- Emergency Action Plan (for Epilepsy – seizures)
- Extra time (20 minutes or more per test component)
- Management of hearing impairment for test sessions conducted by remote proctoring (communication via chat box only)
- Permission to bring blood-insulin monitor, epipen, and/or food and drinks relating to medical condition
- Permission to bring support aids (heat pack, cushion, pillow, essential oil, ergonomic mouse and mobility aids)
- Permission to have guide dog
- Permission to wear brace/splint/wrist support
- Permission to take medication (e.g. ventolin inhaler and diabetes/glucose monitoring kit)
- Permission to use eye drops
- Permission to use a fidget item
- Permission to stand and stretch

- Permission to magnify text and to wear Irlen Spectral Filters / coloured glasses / coloured overlay for the computer monitor
- Permission to use software that inverts the computer screen
- Permission to use a second monitor
- Permission to use lined blank paper
- Permission to use a highlighter
- Permission to use a ruler
- Permission to use a calculator provided by the test centre
- Permission to use text-to-speech software or screen reader
- Permission to read aloud
- Permission to use personal mouse
- Permission to wear ear plugs or noise-cancelling headphones during the test session
- Provision of paper copy of the test
- Provision of additional blank scratch paper
- Permission to use a whiteboard and marker in place of scrap paper
- Provision of a small group test environment (no more than 5 candidates per test room)
- Provision of a fan in the test room
- Provision of ergonomic office chair or adjustable desk
- Provision of a human reader
- Removal of ticking clock from the test room
- Seated near bathroom
- Seated at the front of the test room (for hearing loss) and other special seating requests for the front and back of the test room, and near the aisle, or away from the lights
- Seated in a quiet room
- Special support for candidates with limited mobility (i.e. limit time standing in the registration queue)
- Test supervisor to provide written assistance during the instructions component of the test sessions
- Test supervisor advised to ignore physical movements / verbal outbursts.

3. CANDIDATE PERFORMANCE

This section describes the performance of candidates who participated in the test in 2021. The analysis divides the cohort of candidates into two groups: first-attempt candidates (the majority) and those who did not achieve the standard at their first attempt and resat the test. It presents the distributions of candidate performance overall, by subscale and by candidates' collected demographic information: gender, age group, program type, program type by year level, course category, and location of testing.

3.1 Scale score distributions

Figure 1 and Figure 2 present the distributions of first-attempt candidate performance on the literacy component and numeracy component respectively. The vertical line in each figure represents the standard for that component of the test.

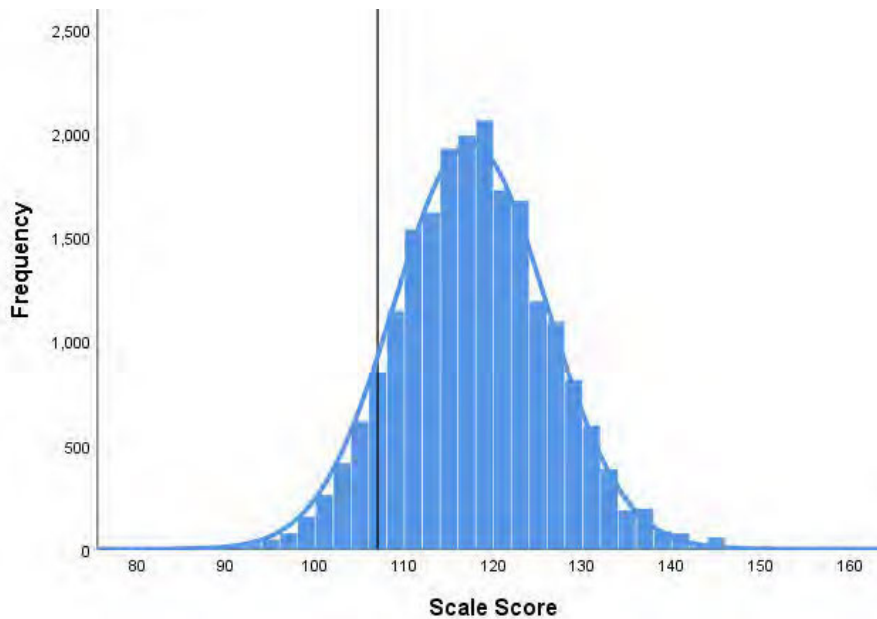


Figure 1: Distribution of candidate scale scores for literacy¹¹

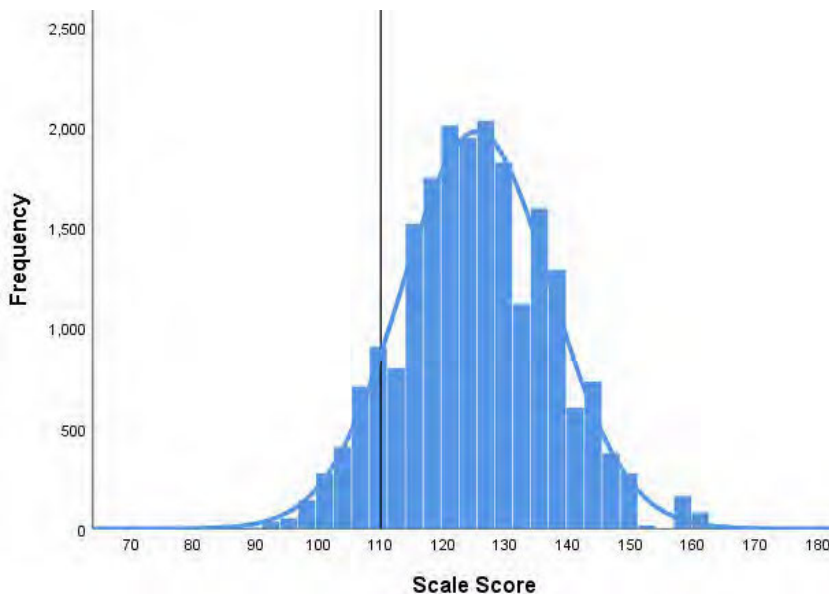


Figure 2: Distribution of candidate scale scores for numeracy¹²

¹¹ The scale score of the literacy standard is 107.

¹² The scale score of the numeracy standard is 110.

Figure 1 and Figure 2 show that scores in both tests are approximately normally distributed and that the tests spread candidates acceptably across the score scales. For both literacy and numeracy, the majority of candidates achieved scale scores above the standard at their first attempt. It can be seen that a proportion of candidates achieved scale scores below the standard at their first attempt.

3.2 Candidate scale scores by subscales and subgroups

Table 22 shows the performance of first-attempt candidates in 2021. It shows the number (N) of candidates, the mean scale scores and standard deviation of the scale scores, overall and by subscale. The pass rates for the literacy and numeracy components for this cohort of candidates are also shown in this table. The overall mean scale score for literacy was 117.4 (similar to 116.9 in 2019), with a pass rate of 90.6% (up from 89.6% in 2020). The overall mean scale score for numeracy was 125.3 (up from 124.3 in 2020), with a pass rate of 90.7% (up from 89.7% in 2020).

Table 22 also shows the performance of candidates on each subscale. As for previous years, the average performance of candidates on the numeracy subscale ‘calculator not available’ was lower than the average performance on the numeracy subscale ‘calculator available’, with a difference of 1.5 scale points. The trend over time, however, is that the difference is decreasing. It was 3.5 scale score points in 2017, 2.5 scale score points in 2018, 1.2 scale score points in 2019 and 1.0 scale score point in 2020. The decrease in difference is mostly due to improving performance on the ‘calculator not available’ subscale, possibly indicating greater attention to the basic number sense and computational skills required.

Scale score frequency distributions for the candidates who participated in the tests are shown in Appendix 3.

Table 22: Candidate performance overall and by subscale for first-attempt candidates

Component	Whole test and subscale	N	Mean	S.D.	Pass Rate
Literacy	Overall	20891	117.4	8.5	90.6
	Reading		117.5	9.0	
	Technical skills of writing		117.3	10.0	
Numeracy	Overall	20720	125.3	12.0	90.7
	Number & algebra		125.6	13.3	
	Measurement & geometry		124.4	12.2	
	Statistics & probability		124.5	11.7	
	Calculator available		125.5	11.7	
	Calculator not available		124.1	15.2	

Table 23 shows the number of candidates (N), mean scale score, and pass rate by demographic characteristics for both literacy and numeracy. Performance of any subgroup with a sample size of less than 10 was not reported.

Table 23: Performance by demographic characteristics for first-attempt candidates

Characteristic	Category	Literacy			Numeracy		
		N	Mean	Pass Rate	N	Mean	Pass Rate
Gender	Female	15037	116.8	89.3	14885	123.4	88.5
	Male	5834	119.0	94.0	5812	130.2	96.5
	Indeterminate/intersex	20	122.3	95.0	23	128.2	95.7
Age	17–25	13285	116.2	90.0	13204	124.5	90.4
	26–30	3306	119.1	92.7	3270	126.8	91.9
	31–35	1625	119.1	90.7	1593	126.5	91.4
	36–40	1165	119.1	90.0	1149	126.7	90.6
	41–45	783	120.1	90.8	772	126.8	91.6
	46+	727	121.0	92.6	732	126.1	89.2

International Students	No	19852	117.6	91.4	19688	125.3	90.7
	Yes	1039	112.7	75.6	1032	125.8	92.5
English as a First Language	Yes	18296	118.0	92.5	18187	125.5	91.3
	No	2595	113.4	77.5	2533	124.2	87.0
Indigenous	No	20291	117.4	90.7	20121	125.3	90.8
	Yes	353	116.0	90.7	354	122.0	86.2
	Not disclosed	247	117.8	85.8	245	126.5	93.5
Residential Area	Metropolitan areas	16798	117.4	90.5	16677	125.3	90.5
	Provincial areas	3740	117.6	91.6	3689	125.4	91.4
	Remote areas	136	118.0	90.4	136	124.0	86.0
	International	181	113.4	80.1	181	129.1	98.3
	Invalid or Missing	36	115.5	88.9	37	125.9	97.3
Program Type	Undergraduate	12524	115.5	88.6	12425	123.2	88.7
	Postgraduate	8279	120.4	93.9	8213	128.6	94.1
	Pathway	88	111.4	75.0	82	116.3	70.7
Program Type by Year Level	Undergraduate first year	1518	115.2	84.8	1494	123.6	87.9
	Undergraduate second year	3472	115.4	87.5	3445	123.5	87.8
	Undergraduate third year	4198	115.4	89.6	4126	123.0	90.1
	Undergraduate fourth year	2799	116.1	91.1	2824	123.0	88.8
	Undergraduate fifth year or above	310	115.8	87.7	316	123.3	86.7
	Undergraduate graduated	227	112.9	79.7	220	120.0	80.5
	Postgraduate first year	4714	121.1	95.1	4648	129.9	95.4
	Postgraduate second year	2753	119.9	93.7	2744	127.8	93.6
	Postgraduate third year	247	118.9	88.7	248	124.9	87.9
	Postgraduate fourth year	174	119.2	90.8	173	125.5	93.6
	Postgraduate fifth year or above	202	119.4	91.1	206	126.1	90.3
	Postgraduate graduated	189	114.0	81.5	194	120.6	82.0
	Pathway first year	80	111.2	75.0	74	116.5	73.0
	Pathway second year	4	-	-	4	-	-
	Pathway third year	1	-	-	1	-	-
	Pathway graduated	3	-	-	3	-	-
Course Category	Early childhood	1294	113.5	81.2	1248	119.7	79.2
	Primary	8722	116.6	90.1	8675	123.7	89.3
	Secondary	8479	119.5	94.2	8446	128.5	95.1
	Special education	133	115.4	89.5	125	122.9	92.0
	Other	2263	115.2	84.7	2226	122.7	86.3

The t-test and Cohen's *d* for effect size were used to determine if group mean scale scores were significantly different for first-attempt candidates. Only differences where $p \leq 0.05$ and $d > 0.2$ or $d < -0.2$ are reported here as significant.

Table 23 shows that male candidates again significantly outperformed female candidates in both literacy and numeracy, but more so in numeracy. For the 2021 cohort, the literacy mean scale score of male candidates (119) was significantly higher (effect size 0.27) than the literacy mean scale score of female candidates (116.8), which were similar values to 2020. The pass rate of the female candidates on the literacy component (89.3%) was considerably lower than that of the male candidates (94%). For numeracy, the difference was even greater. The numeracy mean scale score of the male candidates (130.2) was significantly higher (effect size 0.59) than that of the female candidates (123.4). The pass rate of the female candidates on the numeracy component (88.5%) was considerably lower than that of the male candidates (96.5 %).

As for previous years, achievement on the literacy test tended to increase with the age of the candidates, but this was less evident for numeracy. For literacy, the youngest group of candidates, aged 17–25 (mean scale score 116.2), achieved significantly lower (effect size 0.37) than candidates aged over 25 (119.4). The numeracy mean scale score of candidates aged over 25 was greater than

that of those aged 17–25 (126.6 to 124.5). However the difference was not significant (effect size 0.17).

As for all previous years, in 2021 the mean scale score of international candidates (112.7) for literacy was significantly lower (effect size 0.57) than the mean scale score of other candidates (117.6). For numeracy, the mean scale score of international candidates (125.8) was not significantly higher (effect size 0.05) than the mean scale score of other candidates (125.3).

As for 2017–2020, in 2021 the mean scale score for literacy of candidates for whom English was a first language (118) was significantly higher (effect size 0.53) than the mean scale score for literacy of other candidates (113.4). For numeracy, the mean scale scores were 125.5 and 124.2 respectively. This difference was not significant (effect size 0.10).

As for 2017–2020, in 2021, for both literacy and numeracy, the mean scale scores of candidates who identified as Aboriginal or Torres Strait Islander were significantly lower (effect size 0.27 and 0.29 respectively) than for other candidates. For literacy, the mean scale scores were 114.8 (similar to 115.1 in 2020) and 117.0 respectively; and for numeracy, 119.5 (lower than 120.7 in 2020) and 123.5 respectively. However, it is worth noting that the pass rates of first-attempt candidates who identified as Aboriginal or Torres Strait Islander were still relatively high at 87% (up from 81% in 2017, 83% in 2018 and 84% in 2020) for literacy and 87% for numeracy (up from 81% in 2020). For literacy, the pass rate of candidates identifying as Aboriginal or Torres Strait Islander was higher than that of international candidates (74%) and candidates for whom English was not a first language (74%). The reverse was true for numeracy. The pass rate of candidates identifying as Aboriginal or Torres Strait Islander was lower than that of international candidates (92.5%) and candidates for whom English was not a first language (87%).

Residential postcode data were used to place candidates into four main categories: metropolitan, regional, remote and international. Where postcodes could not be matched to an indicator they were categorised as missing or invalid. As for 2017–2020, in 2021, for both literacy and numeracy, there was little difference in achievement by Australian residential areas (metropolitan, regional and remote). For literacy, candidates with an international postcode achieved significantly lower scores than candidates with metropolitan postcodes (113.4 compared to 117.4, effect size 0.47). Candidates with an international postcode achieved significantly lower scores than candidates with remote postcodes (113.4 compared to 118.0, effect size 0.53). For numeracy, the mean scale score of candidates with international postcodes was significantly higher than for candidates with metropolitan postcodes and also those with remote postcodes (129.1 compared to 125.3 and 124.0 respectively, effect sizes 0.35 and 0.44). As for previous years, for both literacy and numeracy, the mean scale scores of postgraduate candidates were significantly higher in 2021 than for undergraduate candidates. For literacy, this was 120.4 and 115.5 respectively, with an effect size of 0.59, and for numeracy 128.6 and 123.2 respectively, with an effect size of 0.47. The difference in mean scale scores was approximately 5 scale score points for both components.

In 2021, some Higher Education providers offered ‘Pathways’ courses for those considering teaching who don’t meet the state-based requirements for entry into initial teacher education courses. The mean scale scores of candidates enrolled in Pathways courses was significantly lower than the mean scale scores of undergraduate candidates for both literacy and numeracy. For literacy, the mean scale score of the 88 Pathways candidates (111.4) was above the standard (107) and nearly 6 scale score points below the mean scale score of undergraduate candidates (115.5), with an effect size of 0.53. For numeracy, the mean scale score of the 82 Pathways candidates (116.3) was above the standard (110) but nearly 7 scale score points below the mean scale score of undergraduate candidates (123.2), with an effect size of 0.60.

In 2021, as for 2020, for literacy, the mean scale scores of undergraduate candidates increased with the year of the course, ranging from 115.2 for first-year undergraduates to 116.1 for fourth-year

undergraduates. Again, there was no such pattern for numeracy (123.6 for first-year undergraduates, 123.0 for fourth-year undergraduates). For postgraduate candidates, there was no such pattern for literacy or numeracy.

As for previous years, for both literacy and numeracy, the mean scale scores of candidates in the secondary education course category were significantly higher than those of candidates in the other four course categories, with the greatest differences occurring for numeracy. For literacy, there was a 6.0 scale score points difference between the secondary cohort (119.5) and the early years cohort (113.5), and a 3.1 scale score points difference between the primary cohort (116.6) and the early years cohort (113.5).

For numeracy, there was an 8.8 scale score points difference between the secondary cohort (128.5) and the early years cohort (119.7), and a 4.0 scale score points difference between the primary cohort (123.7) and the early years cohort (119.7). The effect sizes for these differences were 0.34 and 0.35 respectively.

Table 24 summarises the significant differences in mean scale scores for the eight demographic characteristics.

Table 24: Subgroups showing significantly higher mean scale scores

Characteristic	Literacy	Numeracy
Gender	Males	Males
Age	Above 25 years	None
International	Domestic	None
Language background	English as a first language	None
Indigeneity	Non-Indigenous	Non-Indigenous
Residential location	Remote and Metropolitan higher than International	International higher than Metropolitan and Remote
Program type	Postgraduate	Postgraduate
Course category	secondary > primary > early childhood	secondary > primary > early childhood

In addition to comparing cohorts by mean scale scores, Figure 3 to Figure 6 display scale score distributions for first-attempt candidates in 2021. The left panel of each figure shows literacy scale score distributions and the right panel of each figure shows numeracy scale score distributions. The horizontal lines in each figure represent the standard scale score for each component of the test.

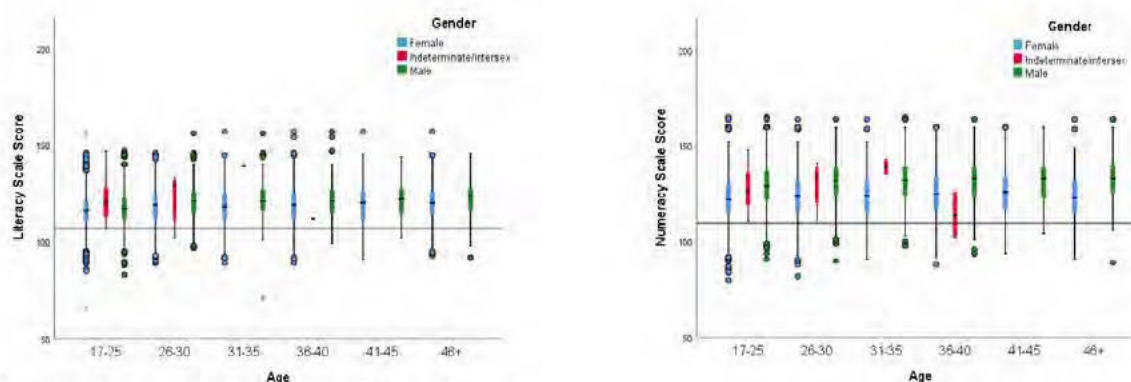


Figure 3: Score distribution by gender and age

Figure 3 shows that, for all age groups, the difference in achievement between male candidates and female candidates is more pronounced for numeracy than for literacy. However, in each age category and for male or female, there are candidates who achieve well above the standard.

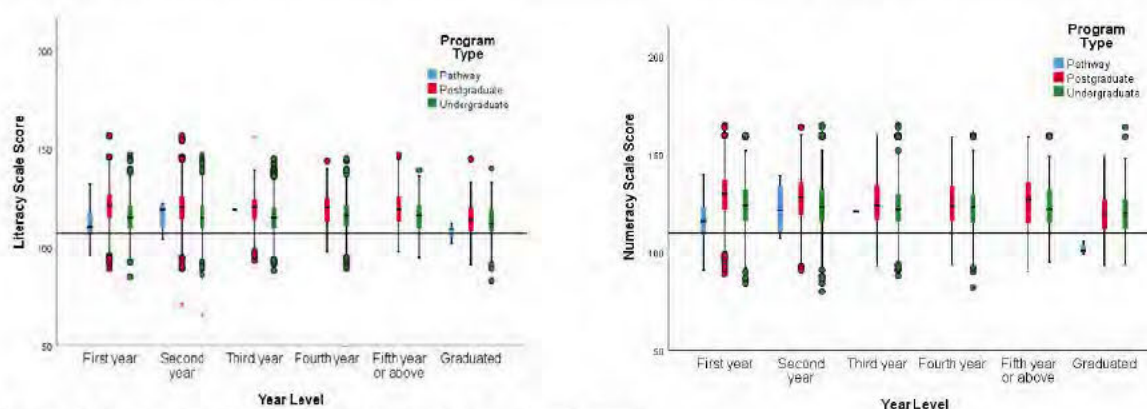


Figure 4: Score distribution by program type and year level

Figure 4 shows that, for all year levels, the difference in achievement between postgraduate candidates and undergraduate candidates is similar for literacy and numeracy, with the achievement of postgraduate candidates higher than that of undergraduate candidates. While the achievement of the Pathways cohort is low for both components, it can be seen that there are a small number of candidates with scores above the standard.

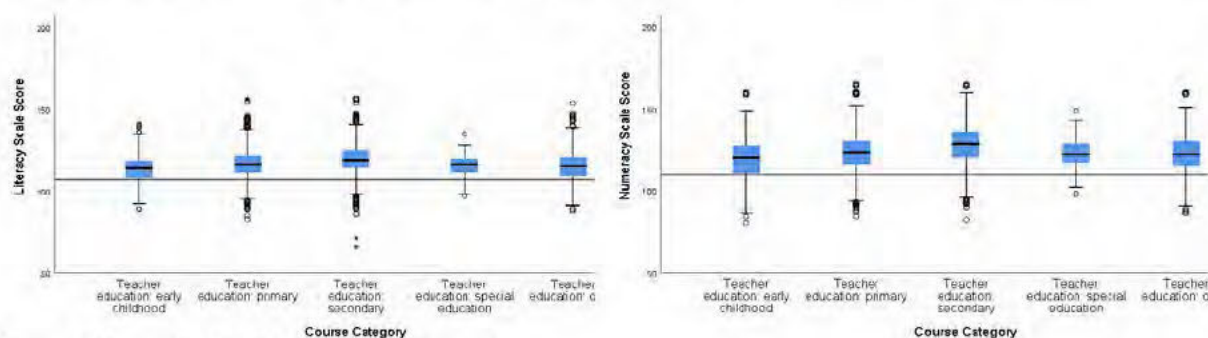


Figure 5: Score distribution by course category

Figure 5 shows that, although candidates in secondary education courses achieve highest in both literacy and numeracy, there are candidates who achieve well above the standard in each of the other courses. For example, for both literacy and numeracy, the achievement of the top 25% of candidates in the early childhood category is broadly equivalent to the top 50% of candidates in the secondary category.

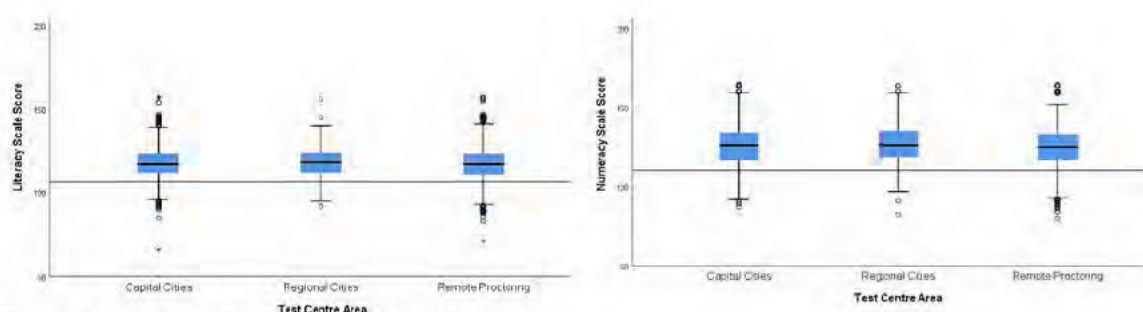


Figure 6: Score distribution by location of testing

Figure 6 shows that for test centres in capital cities and regional cities, and for remote proctoring, for both literacy and numeracy, the distributions are very similar and there are candidates in each category who achieve well above the standard.

3.3 Candidate performance by test centres and remote proctoring

Table 25 shows the performance by test centres and remote proctoring. It can be seen from the last three rows that the performance of candidates using remote proctoring was very similar to the performance of candidates who took tests in capital city test centres and regional city test centres, with less than one scale score point separating the mean scale scores of the three groups for both test components. Pass rates were also very similar.

Table 25: Performance by test centres and remote proctoring

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Test Centre	Adelaide CBD	978	116.2	9.1	85.5	993	123.1	12.8	84.8
	Armidale (NSW)	8	-	-	-	6	-	-	-
	Ballarat	36	119.3	6.7	100.0	29	125.6	12.9	89.7
	Bathurst	17	118.4	7.7	94.1	18	124.9	9.6	100.0
	Brisbane CBD	1936	118.6	8.2	93.9	1906	126.8	11.7	93.0
	Cairns	41	118.1	7.5	90.2	44	128.7	10.7	95.5
	Canberra CBD	166	118.6	8.5	92.2	168	126.2	12.3	92.3
	Darwin	138	111.2	8.3	72.5	132	123.7	11.3	89.4
	Geelong	20	121.3	9.2	100.0	22	127.5	9.7	100.0
	Gold Coast	108	118.6	8.0	96.3	95	126.1	12.6	92.6
	Hobart	108	121.0	7.0	97.2	96	129.2	11.8	96.9
	Melbourne CBD	1108	118.1	8.9	91.4	1026	126.2	12.4	91.7
	Newcastle	72	118.7	9.5	90.3	72	127.4	12.6	94.4
	Parramatta	89	117.0	9.6	86.5	79	128.0	14.1	93.7
	Perth CBD	1921	117.2	8.0	92.3	1920	125.3	11.4	91.8
	Reasonable Adjustments	18	114.1	9.0	77.8	17	120.2	10.2	94.1
	Remote Proctoring	12692	117.2	8.5	90.1	12657	125.0	11.8	90.4
	Rockhampton	5	-	-	-	5	-	-	-
	Sunshine Coast/Maroochydore	70	115.8	8.0	87.1	75	126.3	12.9	89.3
	Sydney CBD	1159	118.2	8.8	92.4	1161	126.4	12.7	91.4
	Townsville	55	118.5	7.9	96.4	54	126.6	12.6	92.6
	Wagga Wagga	13	118.1	8.2	100.0	14	126.2	10.5	92.9
	Warrnambool	15	116.3	10.0	86.7	16	125.3	12.2	93.8
	Wodonga	28	118.3	10.1	89.3	27	127.7	12.5	88.9
	Wollongong	90	117.9	7.2	96.7	88	128.3	11.6	94.3
	Capital Cities	7532	117.7	8.6	91.4	7419	125.7	12.1	91.1
	Regional Cities	667	118.0	8.4	92.8	644	127.0	12.4	93.2
	Remote Proctoring	12692	117.2	8.5	90.1	12657	125.0	11.8	90.4

3.4 Candidates who did not achieve the standard after one attempt

Table 26 shows the number and proportion of candidates who did not achieve the test standard in 2021 after one attempt. The proportion of first-attempt candidates who did not achieve the standard on the literacy component was 9.4% (down from 10.4% in 2020). The proportion of first-attempt candidates who did not achieve the standard on the numeracy component was 9.3% (down from 10.3% in 2020). The percentage of first-attempt candidates who did not achieve either standard in 2021 was 3.9% (down from 4.3% in 2020).

Table 26: Number and proportion of first-attempt candidates who did not achieve the standard

	Number	Percentage
Candidates who did not achieve the literacy standard	1957	9.4
Candidates who did not achieve the numeracy standard	1917	9.3
Candidates who did not achieve the literacy and the numeracy standard	756	3.9

3.5 Performance of resit candidates

Table 27 shows the performance of candidates who had multiple attempts at the test, overall and by subscale. As expected, the performance of resit candidates was lower than the performance of the majority of candidates who achieved the standard at their first attempt. For example, for the 1792 second-attempt candidates for literacy in 2021, their overall mean scale score was 107.4 with a pass rate of 57.3% (compared to 116.9 and 89.6% for first-attempt candidates in 2021). For the 1720 second-attempt candidates for numeracy in 2021, their overall mean scale score for numeracy was 110.5 with a pass rate of 57.5% (compared to 124.3 and 89.7% for first-attempt candidates in 2021).

It can be seen from Table 27 that pass rates for literacy declined steadily from the second attempt with a pass rate of 57.3% to the fifth attempt at 50%. For numeracy, the pass rate decreased from 57.5% for the second attempt to 55.9% for the third attempt. It then increased steadily to 78.5% for the fifth attempt (37 candidates).

For the literacy subscales, the mean scale score of resit candidates was similar for Reading and Technical skills of writing. For the numeracy subscales, the mean scores of resit candidates for the 'calculator not available' subscale were lower than the mean scores of resit candidates on the other numeracy subscales for all resit attempts. Measurement and geometry was the subscale with the lowest mean score for the fourth and fifth attempts, suggesting these are the numeracy skills where resit candidates need most support.

Table 27: Resit candidate performance overall and by subscale

Component	Whole test and subscale	Second Attempt			Third Attempt			Fourth Attempt			Fifth Attempt		
		(Resit 1)			(Resit 2)			(Resit 3)			(Resit 4)		
		N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Literacy	Overall	1792	107.4	57.3	657	106.1	47.5	190	107.2	54.7	46	106.1	50.0
	Reading		107.3			105.8			106.7			105.4	
	Technical skills of writing		107.8			106.7			108.1			107.2	
Numeracy	Overall	1720	110.5	57.5	640	110.7	55.9	173	113.0	68.8	37	112.7	78.4
	Number & algebra		109.6			110.1			113.1			112.9	
	Measurement & geometry		110.6			110.3			111.8			112.2	
	Statistics & probability		111.8			111.7			113.6			112.8	
	Calculator available		111.3			111.3			113.5			113.0	
	Calculator not available		107.4			108.3			111.6			111.5	

It can be seen from Table 28 that, for both literacy and numeracy, despite the availability of more practice materials in 2019, there is very little difference in the mean scale score change between first and second attempts regardless of the time taken between the attempts.

Table 28: Change in scale score between first and second attempts by time

Component	Mean score change (scale score points)				
	Less than 2 months	More than 2 months	From 4 to <6 months	More than 6 months	All
Literacy	4.2	4.0	4.2	4.7	4.3
Numeracy	5.0	5.1	5.1	5.6	5.2

Overall, each second-attempt cohort in 2021 improved their scale scores (4.2 points for literacy and 5.1 points for numeracy). However, after taking performance (Band level *after* second attempt) into account, it can be seen from Table 29 that the change in scale scores was not uniform. The mean score change of the least able cohort (those with second-attempt scores below Band 1) was –6.4 scale score points for literacy and –2.1 scale score points for numeracy. That is, the mean scale score of the candidates below Band 1 was lower at the second attempt than it was at the first attempt. In general, the higher the performance of the second-attempt candidates, the more they were able to improve their scores between their first and second attempts.

Table 29: Change in scale score between first and second attempts by performance (Band)

Component	Mean score change (scale score points)				
	Below Band 1	Band 1	Band 2	Band 3 and above	All
Literacy	–6.4	1.1	6.8	21.5	4.3
Numeracy	–2.1	2.1	8.0	22.9	5.2

The findings above suggest that it is more likely that the change in score between first and second attempts is explained more by performance than it is by the time between testing.

Additional analysis investigated the impact of resit candidates on pass rates. Table 30 categorises candidates by their most recent result come the end of 2021. Table 30 shows that, for literacy, the pass rates in 2021 were 94.1% for no-resit candidates (first-attempt) and ranged from 50% to 68.4% for resit candidates. For numeracy, the pass rates in 2021 were similar to literacy; that is, 93.9% for no-resit candidates and ranging from 60.2% to 78.4% for resit candidates. Overall, in 2021 the performance of resit candidates ‘reduced’ the pass rate by 3.2% in literacy (from 94.1% to 90.9%) and by 2.8% in numeracy (from 93.9% to 91.1%), both less than in 2020.

Table 30: Candidate performance by number of test sittings in 2016–21

Component	Year	Number of Test Sittings	Number of Unique Candidates	Standard Achieved	Standard Not Achieved	Pass Rate
Literacy	2016	1 (no resits)	12347	12210	137	98.9
		2	254	230	24	90.6
		3	20	19	1	95.0
		All	12621	12459	162	98.7
	2017	1 (no resits)	21206	20861	345	98.4
		2	900	796	104	88.4
		3	169	119	50	70.4
		4	25	14	11	56.0
		All	22300	21790	510	97.7
	2018	1 (no resits)	19750	19300	450	97.7
		2	1225	1038	187	84.7
		3	423	298	125	70.4
		4	113	52	61	46.0
		5	12	3	9	25.0
		All	21523	20691	832	96.1
	2019	1 (no resits)	18779	18332	447	97.6
		2	1362	1129	233	82.9
		3	539	353	186	65.5

		4	169	91	78	53.8
		5	36	16	20	44.4
		7	1	0	1	0.0
		All	20886	19921	965	95.4
	2020	1 (no resits)	15221	14790	431	97.2
		2	1011	853	158	84.4
		3	422	291	131	69.0
		4	140	80	60	57.1
		5	33	20	13	60.6
		All	16827	16034	793	95.3
	2021	1 (no resits)	20127	18933	1194	94.1
		2	1501	1027	474	68.4
		3	593	312	281	52.6
		4	179	104	75	58.1
		5	46	23	23	50.0
		All	22446	20399	2047	90.9
Numeracy	2016	1 (no resits)	12242	12082	160	98.7
		2	263	224	39	85.2
		3	26	16	10	61.5
		4	2	2	0	100.0
		All	12533	12324	209	98.3
	2017	1 (no resits)	21468	21108	360	98.3
		2	808	683	125	84.5
		3	192	141	51	73.4
		4	28	17	11	60.7
		All	22496	21949	547	97.6
	2018	1 (no resits)	19714	19225	489	97.5
		2	1136	903	233	79.5
		3	389	242	147	62.2
		4	116	55	61	47.4
		5	27	10	17	37.0
		6	1	1	0	100.0
		All	21383	20436	947	95.6
	2019	1 (no resits)	18655	18159	496	97.3
		2	1275	1014	261	79.5
		3	556	384	172	69.1
		4	193	116	77	60.1
		5	40	19	21	47.5
		All	20719	19692	1027	95.0
	2020	1 (no resits)	15061	14635	426	97.2
		2	1055	878	177	83.2
		3	529	386	143	73.0
		4	182	132	50	72.5
		5	49	34	15	69.4
		All	16876	16065	811	95.2
	2021	1 (no resits)	20029	18803	1226	93.9
		2	1457	988	469	67.8
		3	595	358	237	60.2

	4	165	119	46	72.1
	5	37	29	8	78.4
	6	1	0	1	0.0
	All	22284	20297	1987	91.1

After significant improvement on mean scale scores of second, third and fourth attempt cohorts in some strands in 2020, there was none in 2021. Table 31 details some declines in scale scores.

Compared to the 2020 cohort, the 2021 candidates who resat twice (i.e. three attempts) had a lower mean scale score for Technical skills of writing (TSW). The lower performance in TSW also resulted in a slightly lower mean Literacy scale score (i.e. 0.6 scale score) compared to the 2020 cohort.

Compared to the 2020 cohort, the 2021 candidates who resat once (i.e. two attempts) had a lower mean scale score for the Calculator not allowed (CNA) component of the test.

Table 31: Decline in performance of 2021 resit

Domain	Attempt	Strand	2020 Mean	2020 SD	2020 N	2021 Mean	2021 SD	2021 N	Decrease in scale score
Literacy	3	All	106.67	5.3	546	106.07	5.17	657	0.6
Literacy	3	TSW	108	8.04	546	106.67	7.02	657	1.3
Numeracy	2	CNA	108.28	11.65	1578	107.38	11.89	1720	0.9

4. CANDIDATE PERFORMANCE BY TEST WINDOWS

This section presents candidate performance by test window. The performance of resit candidates is also described by test window.

4.1 Distributions of candidate scale scores by subscale and test window

Table 32 shows the performance of all candidates (first-attempt and resits) who sat the test for each test window in 2021. In 2021, the overall mean scale scores for literacy and numeracy remained quite constant across the four test windows.

There was a similar pattern across the test windows in relation to subscale mean scale scores.

Table 32: Candidate performance by test window, overall and by subscale

Component	Test Window	Whole test and subscale	N	Mean	S.D.	Pass Rate
Literacy	TW1	Overall	5773	116.0	8.7	86.3
		Reading		116.2	9.2	
		Technical skills of writing		115.6	9.9	
	TW2	Overall	6041	116.5	9.0	86.5
		Reading		116.7	9.5	
		Technical skills of writing		116.3	10.3	
	TW3	Overall	5555	116.3	8.7	87.9
		Reading		116.3	9.2	
		Technical skills of writing		116.6	10.2	
	TW4	Overall	6207	116.0	8.9	85.6
		Reading		115.9	9.3	
		Technical skills of writing		116.2	10.2	
Numeracy	TW1	Overall	5760	123.2	12.3	86.9
		Number & algebra		123.6	13.9	
		Measurement & geometry		122.1	12.3	
		Statistics & probability		122.6	12.0	
		Calculator available		123.5	12.0	
		Calculator not available		121.8	15.7	
	TW2	Overall	5866	124.3	13.0	86.6
		Number & algebra		124.8	14.7	
		Measurement & geometry		123.0	12.7	
		Statistics & probability		123.4	12.5	
		Calculator available		124.5	12.7	
		Calculator not available		122.8	16.2	
	TW3	Overall	5470	124.1	12.0	88.7
		Number & algebra		124.2	13.1	
		Measurement & geometry		123.5	12.5	
		Statistics & probability		123.5	11.8	
		Calculator available		124.3	11.6	
		Calculator not available		122.9	15.5	
	TW4	Overall	6195	123.2	12.1	86.5
		Number & algebra		123.1	13.2	
		Measurement & geometry		122.8	12.8	
		Statistics & probability		122.8	11.8	
		Calculator available		123.5	11.8	
		Calculator not available		121.8	15.5	

Appendix 4 provides a detailed analysis of candidate performance by demographic characteristics and test windows. Candidate performance of any subgroup with a sample size less than 10 was not reported.

Appendix 5 provides a detailed analysis of performance by test centres and remote proctoring by test window. The distributions of candidate performance within a subgroup were similar across test windows.

Table 33 shows the proportion of candidates by test window who did not achieve the standard in 2021 after one or more attempts.

Table 33: Number and proportion of candidates who did not achieve the standard by test window

Test Window	Component	Number	% of Candidates
TW1	Literacy	793	13.7
	Numeracy	756	13.1
	Both	236	5.1
TW2	Literacy	814	13.5
	Numeracy	784	13.4
	Both	265	5.4
TW3	Literacy	673	12.1
	Numeracy	620	11.3
	Both	198	4.4
TW4	Literacy	896	14.4
	Numeracy	834	13.5
	Both	269	5.4

4.2 Performance of resit candidates by test window

Table 34 and Table 35 show the performance of resit candidates overall, by subscale and by test attempt for each test window. In each test window, for literacy, the overall mean scale scores of resit candidates who had a second attempt (resit 1) were at or slightly above the standard for literacy (107). For numeracy, the overall mean scale score of resit candidates who had a second attempt was below the numeracy standard (110) for test window 2. For test windows 1, 3 and 4, the scores were slightly above the standard.

For literacy, the candidates who sat the test for the third time (resit 2) had similar but slightly lower overall mean scores to those candidates who sat the test for the second time, as for 2020. The pass rates of the third-attempt (resit 2) candidates also tended to be lower than the second-attempt (resit 1) candidates.

For numeracy, the overall mean scores of candidates who sat the numeracy component for the third time were similar to the overall mean scale scores of those candidates who sat the test for the second time. The pass rates tended to be slightly lower for those candidates who sat the numeracy component for the third time.

Table 34: Resit candidate performance by test window, overall and by subscale for literacy

Component	Test Window	Whole Test and Subscale	Second Attempt (Resit 1)			Third Attempt (Resit 2)			Fourth Attempt (Resit 3)			Fifth Attempt (Resit 4)		
			N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Literacy	TW1	Overall	489	107.6	60.3	172	105.9	46.5	41	108.0	56.1	12	104.8	41.7
		Reading		107.5			105.6			107.5			104.2	
		Technical skills of writing		107.8			106.3			109.2			105.8	
	TW2	Overall	398	107.2	53.0	165	105.7	44.8	42	107.1	54.8	7	-	-
		Reading		107.1			105.5			106.8			-	
		Technical skills of writing		107.5			106.2			107.8			-	
	TW3	Overall	410	107.8	61.5	126	106.2	49.2	37	105.8	43.2	9	-	-
		Reading		107.6			105.4			104.6			-	
		Technical skills of writing		108.3			108.0			108.3			-	
	TW4	Overall	495	107.1	54.3	194	106.5	49.5	70	107.4	60.0	18	104.2	33.3
		Reading		106.9			106.5			107.3			103.0	
		Technical skills of writing		107.6			106.6			107.6			106.7	

Table 35: Resit candidate performance by test window, overall and by subscale for numeracy

Component	Test Window	Whole Test and Subscale	Second Attempt (Resit 1)			Third Attempt (Resit 2)			Fourth Attempt (Resit 3)			Fifth Attempt (Resit 4)		
			N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate	N	Mean	Pass Rate
Numeracy	TW1	Overall	506	110.6	59.9	179	110.5	56.4	41	113.8	73.2	9	-	-
		Number & algebra		109.4			109.9			114.0			-	
		Measurement & geometry		110.8			110.8			113.0			-	
		Statistics & probability		112.2			111.1			113.9			-	
		Calculator available		111.5			111.3			114.1			-	
		Calculator not available		107.0			108.0			113.4			-	
	TW2	Overall	367	109.7	54.0	171	110.9	53.8	44	112.5	70.5	12	113.3	75.0
		Number & algebra		108.7			110.6			113.0			113.4	
		Measurement & geometry		110.1			110.0			110.6			113.3	
		Statistics & probability		110.8			111.8			112.4			113.7	
		Calculator available		110.4			111.5			112.6			114.5	
		Calculator not available		107.2			109.1			112.0			109.7	
	TW3	Overall	353	111.1	59.5	100	111.0	59.0	27	114.1	63.0	6	-	-
		Number & algebra		110.6			109.9			114.0			-	
		Measurement & geometry		110.5			110.9			112.5			-	
		Statistics & probability		112.2			112.7			115.1			-	
		Calculator available		111.8			111.5			114.4			-	
		Calculator not available		108.1			108.9			112.2			-	
	TW4	Overall	494	110.7	56.3	190	110.4	55.5	61	112.3	67.2	10	111.7	90.0

	Number & algebra	109.8		110.0		112.1		110.6	
	Measurement & geometry	110.9		109.6		111.7		111.4	
	Statistics & probability	111.7		111.7		113.6		112.8	
	Calculator available	111.5		111.1		113.2		111.3	
	Calculator not available	107.4		107.5		109.8		112.5	

5. PHASE 7 TRIAL ITEM ANALYSIS

5.1 In-test trialling

Following review by the Expert Groups, 88 literacy items and 84 numeracy items were trialled within the live tests. These items were placed in small clusters (5-item clusters for literacy, and 4-item 'calculator available' clusters and a 1-item 'calculator not available' cluster for numeracy). Candidates were unaware of the location of these trial items. The trial items did not contribute to a candidate's score. The items were trialled in multiple test windows until sufficient candidates had attempted them. In this way, robust trial item estimates were obtained to enable selection of new, balanced clusters for refreshment of the tests in test window 3 and test window 4 in 2022.

5.2 Trial item analysis

Of the 88 literacy items, 85 had acceptable psychometric properties. Of 84 numeracy items, 82 had acceptable properties. Table 36 shows that the acceptable Phase 7 trial items were well-targeted by difficulty, with most numeracy items and just under half of the literacy items achievable by candidates in Band 2: At and above the standard, and in Band 3: Clearly above the standard. A small number are achievable by candidates above Band 3 and in Band 1: Below the standard, as required by the test construct. A number of Phase 7 trial items (11 literacy) were too easy to be of any use in refreshing the test.

Table 36: Distribution of Phase 7 trial items by Band

Achievable by candidates ...	Number of literacy items	Number of numeracy items
well above Band 3	1	0
above Band 3	4	1
in Band 3: Clearly above the standard	11	24
in Band 2: At and above the standard	29	40
in Band 1: Below the standard	29	17
below Band 1	11	0
Total	85	82

5.3 Differential item functioning

During the item development and revision phase, avoiding items that might favour one subgroup of candidates over another is attempted. Despite this, it is normal for a proportion of items to show differential item functioning (DIF).

DIF analysis was performed on all trial items. Only analysis where subgroup size exceeds 50 candidates can be reported reliably. On many occasions, no obvious content or context bias is observable. Investigating reasons for a particular item showing DIF for a particular group involves looking for an explanatory connection between actual characteristics of the item and assumed or posited characteristics of the group.

It is often not possible to withhold all items showing DIF from the live tests, so the approach is to attempt to 'balance' the tests accordingly and thereby minimise the likelihood of any test bias. Selected items with DIF are spread across the clusters. No candidate attempts all clusters, so no candidate is required to attempt all items showing DIF.

Table 37 shows the number of Phase 7 items showing significant differential item functioning. There were an insufficient number (<50) of candidates to reliably report DIF for Indigenous candidates, international candidates, English not as a first language candidates and regional and remote candidates.

For literacy, there were more items favouring postgraduates, but for numeracy the items showing DIF were balanced between postgraduate and undergraduate candidates. There were more items favouring candidates aged 26+ years for literacy and more items favouring candidates 17–25 years for numeracy. For literacy, there were more items favouring male than female candidates. For numeracy, there were more items favouring female than male candidates. For both literacy and numeracy, more items favoured secondary candidates over early childhood & primary candidates.

Items showing DIF are investigated for unfair content and where this is found to exist the items are not selected. Usually, this is not the case and the DIF is performance related; that is, the favoured subgroup is simply better at the skills being assessed for a variety of reasons. To minimise differential test functioning, DIF ‘cancelling’ methodology is applied at the cluster formation stage. That is, items showing DIF are paired with items showing DIF in the opposite direction. In this way, clusters are well-balanced and the tests from which the clusters are created are fair.

Table 37: Differential item functioning

Variable	Favours	Number of literacy items	Number of numeracy items
Age	17–25 years	3	4
	26+ years	5	2
Course Category	Early childhood & primary	0	0
	Secondary	2	2
Gender	Female	3	7
	Male	6	4
Program Type	Postgraduate	5	2
	Undergraduate	0	2

The detailed DIF analysis may be found in Appendix 6.

6. PHASE 8 TEST DEVELOPMENT

During 2020, 120 Phase 7 literacy items (89 Reading and 31 Technical skills of writing) and 108 Phase 7 numeracy items mapped against the Assessment Framework were developed. The items were reviewed by the Experts Group in February 2021 and are were revised based upon reviewers' feedback. A small proportion will be retired. A selection of at least 60 literacy items and at least 60 numeracy items were in-test trialled in test windows 3 and 4 of 2021 and test window 1 of 2022. A selection of these will be used to refresh the test in 2022.

7. CONCLUSION

Despite the significant challenges presented by COVID-19 in 2021, the test was successfully administered in four test windows in all Australian states and territories to 24 604 candidates. Another set of new items was successfully trialled enabling the test to be refreshed.

Item difficulty and targeting of the new set of trial items against the framework was such that equivalent test clusters can be created. Differential item functioning was found to be manageable, ensuring that unbiased clusters can be created in order to refresh the test in mid-2022.

Of the candidates who first registered in 2021, by the end of the year, 92.9% had achieved the literacy standard and 93.0% had achieved the numeracy standard. Over the six years of testing, 95.4% of candidates had achieved the literacy standard and 95.2% of candidates had achieved the numeracy standard. Of the 115 039 candidates presenting for the test in the six year period 2016–2021, 93.3% had achieved both standards, thereby meeting the requirements. Candidates were making effective use of the opportunity to improve their skills and resit the tests with 97.8% of the 2016 cohort achieving the literacy standard and 97.0% achieving the numeracy standard by the end of 2021.

8. APPENDICES

Appendix 1: Proportion of candidates by test centre and by attempt

Table 38 shows the number and proportion of candidates participating at each test centre and by remote proctoring. In 2021, more than half of first-attempt candidates (compared to 22% in 2019) sat the test by remote proctoring. Attendances at many test centres were greatly reduced due to the impact of COVID-19. For example, the Melbourne CBD test centre accounted for 5% of all first attempt candidates in 2021, compared with 21% in 2019.

Table 38: Number and proportion of candidates who participated by test centre

Test Centre	First Attempt				Second Attempt				Third Attempt				Fourth Attempt				Fifth Attempt			
	Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy		Literacy		Numeracy	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Adelaide CBD	978	4.7	993	4.8	133	7.4	136	7.9	49	7.5	58	9.0	11	5.8	10	5.8	6	13.0	3	8.1
Armidale (NSW)	8	0.0	6	0.0	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	2.7
Ballarat	36	0.2	29	0.1	1	0.1	4	0.2	1	0.2	1	0.2	0	-	0	-	0	-	0	-
Bathurst	17	0.1	18	0.1	1	0.1	2	0.1	0	-	0	-	0	-	0	-	0	-	0	-
Brisbane CBD	1936	9.3	1906	9.2	126	7.0	105	6.1	28	4.3	35	5.5	6	3.2	5	2.9	0	-	1	2.7
Cairns	41	0.2	44	0.2	1	0.1	0	-	0	-	0	-	0	-	0	-	0	-	0	-
Canberra CBD	166	0.8	168	0.8	11	0.6	12	0.7	8	1.2	6	0.9	2	1.1	1	0.6	0	-	0	-
Darwin	138	0.7	132	0.6	44	2.5	19	1.1	29	4.4	6	0.9	2	1.1	0	-	0	-	0	-
Geelong	20	0.1	22	0.1	3	0.2	0	-	0	-	0	-	0	-	0	-	0	-	0	-
Gold Coast	108	0.5	95	0.5	7	0.4	6	0.3	3	0.5	1	0.2	0	-	1	0.6	1	2.2	0	-
Hobart	108	0.5	96	0.5	1	0.1	2	0.1	0	-	0	-	0	-	0	-	0	-	0	-
Melbourne CBD	1108	5.3	1026	5.0	66	3.7	70	4.1	32	4.9	34	5.3	9	4.7	8	4.6	5	10.9	4	10.8
Newcastle	72	0.3	72	0.3	3	0.2	1	0.1	1	0.2	0	-	0	-	0	-	0	-	0	-
Parramatta	89	0.4	79	0.4	6	0.3	3	0.2	2	0.3	4	0.6	0	-	0	-	0	-	0	-
Perth CBD	1921	9.2	1920	9.3	115	6.4	114	6.6	25	3.8	34	5.3	7	3.7	8	4.6	1	2.2	2	5.4
Reasonable Adjustments	18	0.1	17	0.1	8	0.4	10	0.6	5	0.8	9	1.4	4	2.1	7	4.0	3	6.5	2	5.4
Remote Proctoring	12692	60.8	12657	61.1	1168	65.2	1138	66.2	435	66.2	417	65.1	143	75.3	124	71.7	30	65.2	24	64.9
Rockhampton	5	0.0	5	0.0	0	-	1	0.1	0	-	0	-	0	-	0	-	0	-	0	-
Sunshine Coast/Maroochydore	70	0.3	75	0.4	5	0.3	4	0.2	0	-	1	0.2	1	0.5	0	-	0	-	0	-
Sydney CBD	1159	5.5	1161	5.6	87	4.9	89	5.2	37	5.6	31	4.8	4	2.1	9	5.2	0	-	0	-
Townsville	55	0.3	54	0.3	1	0.1	1	0.1	0	-	0	-	0	-	0	-	0	-	0	-
Wagga Wagga	13	0.1	14	0.1	0	-	0	-	0	-	0	-	1	0.5	0	-	0	-	0	-
Warrnambool	15	0.1	16	0.1	1	0.1	0	-	0	-	1	0.2	0	-	0	-	0	-	0	-

Wodonga	28	0.1	27	0.1	1	0.1	0	-	1	0.2	1	0.2	0	-	0	-	0	-	0	-
Wollongong	90	0.4	88	0.4	3	0.2	3	0.2	1	0.2	2	0.3	0	-	0	-	0	-	0	-
Total	20891	100	20720	100	1792	100	1720	100	657	100	641	100	190	100	173	100	46	100	37	100

Appendix 2: Proportion of candidates by test centre and by test window

Table 39 and Table 40 show the number and proportion of candidates participating in each test centre in test windows 1–4 for literacy and for numeracy respectively. It can be seen that some test centres in some locations were not used for some test windows.

Table 39: Number of candidates in test centres by test windows – Literacy

Test Centre	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Adelaide CBD	335	5.8	368	6.1	242	4.4	232	3.7
Armidale (NSW)	0	-	8	0.1	0	-	0	-
Ballarat	0	-	32	0.5	6	0.1	0	-
Bathurst	0	-	18	0.3	0	-	0	-
Brisbane CBD	650	11.3	451	7.5	541	9.7	454	7.3
Cairns	0	-	9	0.1	33	0.6	0	-
Canberra CBD	110	1.9	77	1.3	0	-	0	-
Darwin	70	1.2	61	1.0	47	0.8	35	0.6
Geelong	0	-	23	0.4	0	-	0	-
Gold Coast	24	0.4	57	0.9	0	-	38	0.6
Hobart	22	0.4	18	0.3	27	0.5	42	0.7
Melbourne CBD	575	10.0	645	10.7	0	-	0	-
Newcastle	23	0.4	53	0.9	0	-	0	-
Parramatta	0	-	97	1.6	0	-	0	-
Perth CBD	538	9.3	512	8.5	596	10.7	423	6.8
Reasonable Adjustments	12	0.2	12	0.2	5	0.1	9	0.1
Remote Proctoring	2697	46.7	2810	46.5	3987	71.8	4974	80.1
Rockhampton	0	-	5	0.1	0	-	0	-
Sunshine Coast/Maroochydore	30	0.5	25	0.4	21	0.4	0	-
Sydney CBD	671	11.6	616	10.2	0	-	0	-
Townsville	0	-	20	0.3	36	0.6	0	-
Wagga Wagga	0	-	14	0.2	0	-	0	-
Warrnambool	16	0.3	0	-	0	-	0	-
Wodonga	0	-	16	0.3	14	0.3	0	-
Wollongong	0	-	94	1.6	0	-	0	-
Total	5773	100	6041	100	5555	100	6207	100

Table 40: Number of candidates in test centres by test windows – Numeracy

Test Centre	TW1		TW2		TW3		TW4	
	N	%	N	%	N	%	N	%
Adelaide CBD	343	6.0	363	6.2	234	4.3	260	4.2
Armidale (NSW)	0	-	7	0.1	0	-	0	-
Ballarat	0	-	30	0.5	4	0.1	0	-
Bathurst	0	-	20	0.3	0	-	0	-
Brisbane CBD	631	11.0	446	7.6	523	9.6	452	7.3
Cairns	0	-	7	0.1	37	0.7	0	-
Canberra CBD	118	2.0	69	1.2	0	-	0	-
Darwin	48	0.8	38	0.6	39	0.7	32	0.5
Geelong	0	-	22	0.4	0	-	0	-
Gold Coast	24	0.4	51	0.9	0	-	28	0.5
Hobart	20	0.3	17	0.3	24	0.4	37	0.6
Melbourne CBD	542	9.4	600	10.2	0	-	0	-
Newcastle	23	0.4	50	0.9	0	-	0	-
Parramatta	0	-	86	1.5	0	-	0	-
Perth CBD	556	9.7	506	8.6	577	10.5	439	7.1
Reasonable Adjustments	17	0.3	11	0.2	4	0.1	13	0.2
Remote Proctoring	2717	47.2	2754	46.9	3955	72.3	4935	79.6
Rockhampton	0	-	6	0.1	0	-	0	-
Sunshine Coast/Maroochydore	26	0.5	27	0.5	27	0.5	0	-
Sydney CBD	678	11.8	612	10.4	0	-	0	-
Townsville	0	-	21	0.4	34	0.6	0	-
Wagga Wagga	0	-	14	0.2	0	-	0	-
Warrnambool	17	0.3	0	-	0	-	0	-
Wodonga	0	-	16	0.3	12	0.2	0	-
Wollongong	0	-	93	1.6	0	-	0	-
Total	5760	100	5866	100	5470	100	6196	100

Appendix 3: Score frequency distribution

Table 41: Literacy score frequency distribution of first-attempt candidates

Scale Score	Frequency	Percentile
49	1	0.0
66	1	0.0
71	1	0.0
83	1	0.0
85	1	0.0
86	1	0.0
88	1	0.0
89	8	0.1
90	4	0.1
91	5	0.1
92	13	0.2
93	13	0.2
94	14	0.3
95	31	0.5
96	33	0.6
97	43	0.8
98	55	1.1
99	101	1.6
100	109	2.1
101	152	2.8
102	159	3.6
103	254	4.8
104	244	6.0
105	372	7.7
106	340	9.4
107	514	11.8
108	507	14.3
109	640	17.3
110	728	20.8
111	812	24.7
112	752	28.3
113	869	32.4
114	940	36.9
115	989	41.7
116	964	46.3
117	1029	51.2
118	921	55.6
119	1145	61.1
120	803	65.0
121	925	69.4
122	847	73.4
123	832	77.4
124	596	80.3
125	597	83.1
126	682	86.4
127	413	88.4
128	434	90.5
129	381	92.3
130	292	93.7
131	304	95.1
132	127	95.7
133	257	97.0
134	114	97.5
135	73	97.9
136	170	98.7

Standard in 2017 TW3–4, 2018 to 2021

137	24	98.8
138	24	98.9
139	61	99.2
140	71	99.5
141	5	99.6
142	6	99.6
143	7	99.6
144	18	99.7
145	37	99.9
146	10	99.9
147	3	99.9
154	2	100.0
155	1	100.0
156	3	100.0
157	5	100.0

Table 42: Numeracy score frequency distribution of first-attempt candidates

Scale Score	Frequency	Percentile
80	1	0.0
82	1	0.0
84	2	0.0
86	2	0.0
87	2	0.0
88	2	0.0
89	2	0.1
90	3	0.1
91	8	0.1
92	12	0.2
93	16	0.2
94	20	0.3
95	17	0.4
96	15	0.5
97	34	0.7
98	56	0.9
99	51	1.2
100	77	1.5
101	83	1.9
102	116	2.5
103	128	3.1
104	112	3.7
105	166	4.5
106	203	5.4
107	211	6.5
108	295	7.9
109	282	9.3
110	308	10.7
111	317	12.3
112	391	14.2
113	410	16.1
114	439	18.3
115	567	21.0
116	515	23.5
117	589	26.3
118	548	29.0
119	615	31.9
120	629	35.0
121	711	38.4
122	672	41.6

Standard in 2017 TW3–4, 2018 to 2021

123	614	44.6
124	761	48.3
125	575	51.1
126	733	54.6
127	618	57.6
128	686	60.9
129	605	63.8
130	764	67.5
131	457	69.7
132	663	72.9
133	457	75.1
134	595	78.0
135	489	80.3
136	515	82.8
137	502	85.2
138	180	86.1
139	609	89.0
140	294	90.5
141	77	90.8
142	233	92.0
143	596	94.8
145	138	95.5
146	4	95.5
147	58	95.8
148	314	97.3
149	223	98.4
151	53	98.7
152	16	98.7
159	163	99.5
160	80	99.9
164	17	100.0
165	3	100.0

Table 43 shows the percentage of candidates who sat the test in 2021 for each of the three bands for both literacy and numeracy. For literacy, 58% of the candidates who registered in 2021 and sat the literacy component in 2021 were located in Band 2: At or above the standard, while approximately 35% were located in Band 3: Well above the standard or above Band 3. For numeracy, 38% were located in Band 2: At or above the standard, while 56% were located in Band 3: Well above the standard or above Band 3.

Table 43: Candidates attempting the test in 2021 by Band achievement

Component	Year of Registration	No. of Unique Candidates	Below Band 1 (%)	Band 1 (%)	Band 2 (%)	Band 3 (%)	Above Band 3 (%)
Literacy	2021	20891	0.2	7.0	57.8	32.6	2.5
	2021 plus the 2016–21 resitters	22446	0.2	9.0	58.2	30.4	2.3
Numeracy	2021	20720	0.4	6.7	37.5	40.7	14.8
	2021 plus the 2016–21 resitters	22284	0.4	8.5	39.2	38.1	13.8

The distribution of candidate scale scores across the bands in 2021 was similar to that in 2020 for both literacy and numeracy.

Appendix 4: Performance by demographic characteristics and test windows

Tables 44, 45, 46 and 47 show performance by demographic characteristics for each test window. In general, the overall findings in Section 3: Candidate Performance are also true for each test window.

Undergraduate candidates in their first year were more likely to attempt the test in test window 4, whereas the reverse was true for undergraduate candidates in their fourth year who were more likely to attempt the test in test window 1.

Postgraduate candidates in their first year were most likely to attempt the test in test windows 1, 3 and 4. However, postgraduate candidates in their second year were more likely to attempt the test in test window 1.

Table 44: Performance by demographic characteristics in test window 1

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4252	115.3	8.7	84.5	4303	121.3	11.7	84.2
	Male	1517	117.8	8.5	91.2	1452	128.9	12.1	94.8
	Indeterminate/intersex	4	-	-	-	5	-	-	-
Age	17–25	3603	115.0	7.9	86.3	3612	122.8	11.9	87.0
	26–30	921	116.7	9.1	85.9	896	123.5	12.8	86.2
	31–35	486	117.5	9.7	86.4	459	124.6	13.0	87.8
	36–40	337	117.8	10.2	86.4	339	124.4	12.9	86.7
	41–45	226	119.1	11.1	86.3	238	124.5	12.8	86.6
	46+	200	118.9	11.0	87.5	216	122.8	13.7	86.1
International Students	No	5331	116.4	8.6	87.8	5451	123.2	12.3	86.7
	Yes	442	110.6	8.2	67.6	309	124.0	11.9	90.6
English as a First Language	Yes	4848	116.9	8.4	89.8	5010	123.4	12.2	87.7
	No	925	111.1	8.6	67.8	750	121.7	12.9	81.2
Indigenous	No	5593	116.0	8.8	86.2	5569	123.2	12.3	86.8
	Yes	102	115.0	7.2	89.2	107	119.8	10.4	85.0
	Not disclosed	78	116.7	9.0	84.6	84	124.4	11.0	92.9
Residential Area	Metropolitan areas	4660	115.8	8.8	85.9	4656	123.0	12.4	86.1
	Provincial areas	1034	116.7	8.5	88.1	1018	124.2	11.6	90.4
	Remote areas	37	116.7	9.2	86.5	42	121.2	13.2	78.6
	International	29	113.4	9.0	82.8	32	130.2	8.4	100.0
	Invalid or Missing	13	116.2	9.7	84.6	12	122.9	13.1	91.7
Program Type	Undergraduate	3533	114.2	7.8	84.1	3570	120.9	11.4	84.1
	Postgraduate	2218	118.8	9.4	89.6	2174	127.1	12.8	91.6
	Pathway	22	112.6	6.6	86.4	16	117.0	9.9	75.0
Program Type by Year Level	Undergraduate first year	151	114.7	7.8	85.4	150	121.8	11.5	84.7
	Undergraduate second year	662	114.6	8.0	84.6	663	122.3	11.8	86.9
	Undergraduate third year	971	114.2	7.6	84.8	939	121.7	11.0	87.0
	Undergraduate fourth year	1491	114.5	7.7	85.6	1549	120.3	11.2	83.1

	Undergraduate fifth year or above	149	113.0	8.0	77.2	154	119.5	12.0	81.2
	Undergraduate graduated	109	109.4	6.6	64.2	115	113.9	10.9	60.0
	Postgraduate first year	722	121.1	9.4	93.6	710	130.7	12.2	95.6
	Postgraduate second year	1201	118.2	8.9	89.6	1160	126.5	12.4	91.9
	Postgraduate third year	88	116.8	9.6	83.0	92	121.9	13.5	81.5
	Postgraduate fourth year	62	118.1	11.1	80.6	70	121.1	12.0	82.9
	Postgraduate fifth year or above	77	117.4	11.1	81.8	76	123.5	13.6	86.8
	Postgraduate graduated	68	110.7	6.7	73.5	66	116.2	10.4	71.2
	Pathway first year	14	112.7	5.7	92.9	10	116.4	5.9	80.0
	Pathway second year	6	-	-	-	3	-	-	-
	Pathway third year	1	-	-	-	2	-	-	-
	Pathway fifth year or above	0	-	-	-	0	-	-	-
	Pathway graduated	1	-	-	-	1	-	-	-
Course Category	Early childhood	470	111.9	8.3	73.2	461	117.8	11.0	74.4
	Primary	2416	115.2	8.3	85.5	2403	121.8	11.4	85.9
	Secondary	2204	118.1	8.8	90.7	2203	126.7	12.6	92.1
	Special education	32	117.0	5.6	100.0	33	120.2	8.7	93.9
	Other	651	114.4	8.5	82.6	660	120.6	12.3	81.5

Table 45: Performance by demographic characteristics in test window 2 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4274	115.7	9.0	84.5	4185	121.8	12.6	83.1
	Male	1759	118.6	8.7	91.5	1673	130.3	12.2	95.5
	Indeterminate/intersex	8	-	-	-	8	-	-	-
Age	17–25	3789	115.4	8.4	86.2	3700	123.5	12.5	86.4
	26–30	1034	118.2	9.6	87.1	996	125.6	13.5	86.8
	31–35	451	117.8	9.9	86.0	424	126.0	13.7	88.7
	36–40	323	118.2	9.6	86.1	308	125.1	14.4	85.1
	41–45	219	118.5	10.4	87.2	205	125.9	13.4	89.8
	46+	225	120.1	10.1	90.2	233	125.2	14.9	84.5
International Students	No	5648	116.9	8.9	88.1	5555	124.2	13.1	86.4
	Yes	393	110.3	8.8	64.1	311	125.2	11.6	90.7
English as a First Language	Yes	5088	117.4	8.8	89.5	5022	124.4	13.0	87.2
	No	953	112.0	9.0	70.5	844	123.2	13.4	83.4
Indigenous	No	5869	116.5	9.0	86.7	5688	124.3	13.0	86.7
	Yes	90	114.8	8.5	85.6	105	120.2	12.5	78.1
	Not disclosed	82	116.2	10.7	74.4	73	127.5	12.6	91.8
Residential Area	Metropolitan areas	4917	116.7	9.1	86.7	4790	124.4	13.1	86.6

	Provincial areas	1004	116.2	8.9	86.7	959	123.6	12.7	86.2
	Remote areas	32	115.7	7.7	93.8	36	120.1	13.2	80.6
	International	75	111.5	8.4	73.3	67	129.4	10.1	98.5
	Invalid or Missing	13	114.8	10.3	84.6	14	125.9	10.6	100.0
Program Type	Undergraduate	3338	114.2	8.1	83.2	3281	121.2	12.1	82.3
	Postgraduate	2681	119.5	9.3	91.0	2569	128.3	13.1	92.3
	Pathway	22	107.7	7.3	45.5	16	114.2	12.9	68.8
Program Type by Year Level	Undergraduate first year	329	116.1	8.1	88.1	305	125.5	11.7	90.5
	Undergraduate second year	856	114.1	8.3	80.5	842	121.8	12.9	81.2
	Undergraduate third year	982	114.3	7.6	85.7	941	121.3	11.4	84.5
	Undergraduate fourth year	909	113.9	8.1	83.1	917	120.1	11.5	82.2
	Undergraduate fifth year or above	146	113.7	8.2	81.5	159	119.0	13.3	72.3
	Undergraduate graduated	116	110.4	8.4	69.8	117	115.4	12.1	65.8
	Postgraduate first year	1612	120.8	8.6	94.5	1541	130.6	12.2	95.5
	Postgraduate second year	778	118.5	9.9	88.4	738	126.1	13.0	89.4
	Postgraduate third year	86	116.2	9.4	80.2	87	121.7	16.3	77.0
	Postgraduate fourth year	60	116.4	8.5	85.0	52	125.9	14.4	88.5
	Postgraduate fifth year or above	62	116.1	10.0	79.0	75	121.9	14.2	85.3
	Postgraduate graduated	83	112.1	8.6	73.5	76	119.2	11.6	81.6
	Pathway first year	18	108.7	7.7	55.6	13	115.6	13.6	69.2
	Pathway second year	2	-	-	-	2	-	-	-
	Pathway third year	1	-	-	-	0	-	-	-
	Pathway fifth year or above	0	-	-	-	0	-	-	-
	Pathway graduated	1	-	-	-	1	-	-	-
Course Category	Early childhood	454	111.4	8.8	69.8	403	118.0	12.8	73.0
	Primary	2407	115.7	8.6	86.0	2360	122.0	12.5	83.8
	Secondary	2543	118.9	9.0	91.5	2507	128.2	12.7	92.9
	Special education	23	114.0	9.2	82.6	20	123.7	11.7	85.0
	Other	614	113.9	8.4	80.6	576	121.0	12.2	80.9

Table 46: Performance by demographic characteristics in test window 3 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4177	115.7	8.7	86.4	4128	122.3	11.6	86.2
	Male	1373	118.3	8.6	92.4	1337	129.8	11.4	96.2
	Indeterminate/intersex	5	-	-	-	5	-	-	-
Age	17–25	3670	115.4	8.0	87.3	3579	123.7	11.6	89.3
	26–30	822	118.0	9.3	89.8	818	125.3	12.4	88.5

	31–35	403	117.6	9.8	87.6	403	124.8	12.7	86.8
	36–40	284	117.9	9.7	89.4	284	125.1	12.9	89.1
	41–45	188	118.8	10.7	86.2	188	124.3	13.3	84.6
	46+	188	120.1	9.9	90.4	198	123.5	13.4	84.8
International Students	No	5212	116.7	8.6	89.3	5192	124.1	12.0	88.6
	Yes	343	110.8	8.4	66.8	278	125.3	11.5	90.3
English as a First Language	Yes	4789	117.1	8.5	90.8	4814	124.3	11.9	89.3
	No	766	111.5	8.8	69.8	656	122.6	12.6	83.7
Indigenous	No	5396	116.4	8.7	88.0	5321	124.2	12.0	88.9
	Yes	99	114.0	7.5	82.8	96	118.9	11.0	78.1
	Not disclosed	60	115.5	9.8	81.7	53	124.8	13.9	88.7
Residential Area	Metropolitan areas	4454	116.4	8.7	88.2	4389	124.1	12.0	88.6
	Provincial areas	994	116.5	8.7	88.0	986	124.4	12.0	89.2
	Remote areas	42	117.0	9.0	83.3	44	120.3	14.7	72.7
	International	57	112.5	8.6	70.2	43	128.4	9.6	97.7
	Invalid or Missing	8	-	-	-	8	-	-	-
Program Type	Undergraduate	3620	114.7	7.9	86.0	3568	122.5	11.4	86.9
	Postgraduate	1917	119.5	9.3	91.9	1883	127.4	12.4	92.5
	Pathway	18	106.4	9.3	50.0	19	112.8	12.6	47.4
Program Type by Year Level	Undergraduate first year	444	115.2	8.6	83.6	436	123.6	12.4	87.4
	Undergraduate second year	1041	115.5	8.0	88.9	1021	124.0	11.8	87.4
	Undergraduate third year	1342	114.7	7.4	87.3	1296	122.4	10.5	89.8
	Undergraduate fourth year	640	114.1	7.8	84.2	651	120.6	11.4	82.5
	Undergraduate fifth year or above	72	112.3	8.2	75.0	82	118.3	11.4	75.6
	Undergraduate graduated	81	110.3	8.4	64.2	82	117.6	10.6	76.8
	Postgraduate first year	1123	120.6	8.8	94.5	1090	129.2	11.7	94.6
	Postgraduate second year	603	118.5	9.4	89.9	595	125.9	12.8	90.6
	Postgraduate third year	50	118.1	12.6	76.0	47	123.4	12.7	85.1
	Postgraduate fourth year	42	115.1	9.4	83.3	40	120.2	13.5	87.5
	Postgraduate fifth year or above	53	119.5	9.1	96.2	53	127.6	12.3	94.3
	Postgraduate graduated	46	112.2	8.4	73.9	58	117.9	10.0	81.0
	Pathway first year	18	106.4	9.3	50.0	19	112.8	12.6	47.4
	Pathway second year	0	-	-	-	0	-	-	-
	Pathway third year	0	-	-	-	0	-	-	-
	Pathway fifth yr or above	0	-	-	-	0	-	-	-
	Pathway graduated	0	-	-	-	0	-	-	-
Course Category	Early childhood	405	111.8	8.0	75.3	376	117.6	11.5	73.9
	Primary	2444	115.9	8.3	88.0	2444	122.9	11.5	88.0
	Secondary	2083	118.6	8.7	92.9	2038	127.5	11.8	93.2
	Special education	32	113.5	7.4	81.3	38	121.1	9.7	86.8
	Other	591	113.8	9.1	78.5	574	121.7	12.1	85.2

Table 47: Performance by demographic characteristics in test window 4 (including resits)

Characteristic	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
Gender	Female	4550	115.3	8.9	83.6	4590	121.4	11.7	83.8
	Male	1652	118.0	8.6	91.0	1600	128.6	11.6	94.3
	Indeterminate/intersex	5	-	-	-	5	-	-	-
Age	17–25	3950	115.1	8.0	85.7	3932	122.4	11.7	86.2
	26–30	982	117.5	9.0	88.1	976	125.1	12.7	89.3
	31–35	483	118.0	10.2	85.3	492	123.9	12.5	86.2
	36–40	359	117.0	11.1	81.3	351	124.8	13.2	85.8
	41–45	235	118.2	10.8	82.1	236	125.4	11.9	89.8
	46+	198	118.1	10.8	81.8	208	122.8	13.5	78.8
International Students	No	5863	116.4	8.8	87.1	5952	123.2	12.1	86.5
	Yes	344	109.9	8.7	59.6	243	123.0	12.5	86.8
English as a First Language	Yes	5336	116.9	8.5	89.1	5479	123.5	12.0	87.3
	No	871	110.7	9.3	63.9	716	121.0	12.5	80.6
Indigenous	No	6034	116.0	8.9	85.5	6020	123.3	12.1	86.6
	Yes	115	115.4	8.8	87.0	114	120.6	12.5	80.7
	Not disclosed	58	118.0	9.4	84.5	61	123.7	12.7	86.9
Residential Area	Metropolitan areas	4965	115.9	8.9	85.1	4975	123.1	12.2	86.1
	Provincial areas	1133	116.8	8.6	88.5	1125	123.7	11.8	87.8
	Remote areas	45	116.7	10.5	80.0	42	124.0	11.0	90.5
	International	52	112.5	8.4	75.0	41	127.3	11.5	95.1
	Invalid or Missing	12	112.0	8.8	75.0	12	121.1	9.5	91.7
Program Type	Undergraduate	3920	114.4	7.9	84.2	3919	121.4	11.5	84.5
	Postgraduate	2240	119.0	9.7	88.3	2230	126.5	12.5	90.4
	Pathway	47	111.0	7.5	70.2	46	115.3	11.6	69.6
Program Type by Year Level	Undergraduate first year	645	114.2	8.4	81.6	631	122.5	11.6	86.5
	Undergraduate second year	1094	115.3	7.8	87.7	1093	123.0	11.1	88.6
	Undergraduate third year	1427	114.6	7.6	85.4	1390	121.6	11.2	85.5
	Undergraduate fourth year	567	113.5	8.3	81.0	619	118.9	11.7	77.5
	Undergraduate fifth year or above	106	112.0	7.9	76.4	103	117.4	12.7	68.9
	Undergraduate graduated	81	110.3	8.1	71.6	83	115.5	10.0	69.9
	Postgraduate first year	1415	120.2	9.0	92.4	1408	128.1	11.9	93.3
	Postgraduate second year	563	117.9	10.4	83.7	570	125.0	13.1	86.8
	Postgraduate third year	78	115.4	10.0	74.4	81	120.9	13.4	75.3
	Postgraduate fourth year	59	115.6	9.5	76.3	53	122.8	11.9	90.6
	Postgraduate fifth year or above	52	117.0	10.3	84.6	50	122.0	12.7	88.0
	Postgraduate graduated	73	112.4	9.8	69.9	68	119.4	12.9	80.9
	Pathway first year	44	111.3	7.5	70.5	44	115.9	11.5	72.7
	Pathway second year	0	-	-	-	0	-	-	-
	Pathway third year	0	-	-	-	0	-	-	-
	Pathway fifth year or above	0	-	-	-	0	-	-	-
	Pathway graduated	3	-	-	-	2	-	-	-

Course Category	Early childhood	377	111.8	8.5	72.1	353	116.5	11.7	70.0
	Primary	2606	115.2	8.5	85.0	2642	122.0	11.7	84.9
	Secondary	2357	118.5	8.7	90.9	2366	126.5	11.9	92.1
	Special education	59	113.9	7.9	79.7	48	122.0	10.1	87.5
	Other	808	113.6	9.0	78.5	786	120.6	11.7	82.6

Figure 7 to Figure 11 show achievement distributions in literacy and numeracy by demographic characteristics for each test window.

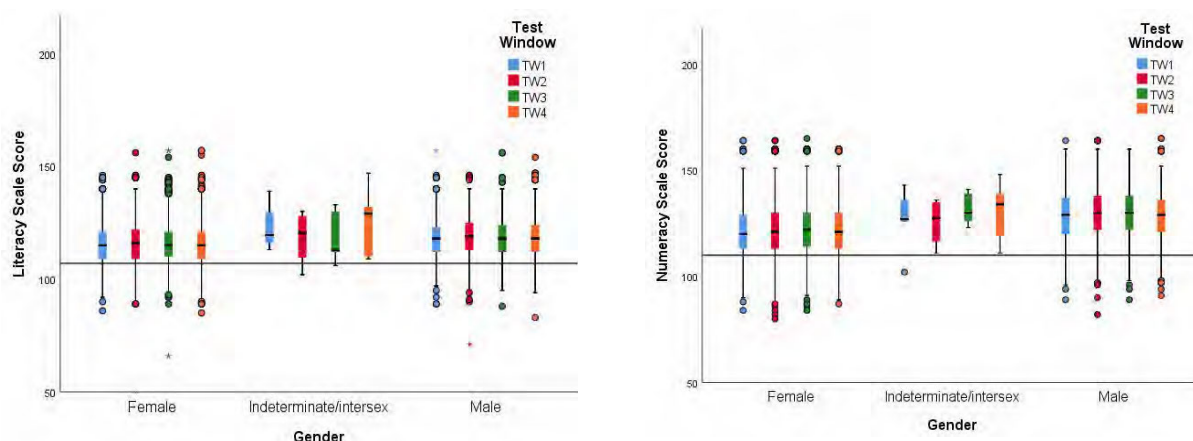


Figure 7: Score distribution by gender and test window

Figure 7 shows that, for literacy, the distributions of the scale scores of female candidates and male candidates are very similar to each other across test windows. For numeracy, while the distributions of the scale scores of male candidates were higher up the scale than those of female candidates, it can be seen that in each test window most female candidates achieved well above the numeracy standard. It can also be seen that there were female candidates achieving very high numeracy scores. The median scale scores were lowest in test window 2 for both males and females for literacy and for females for numeracy. There was little apparent variation between test windows for males for numeracy.

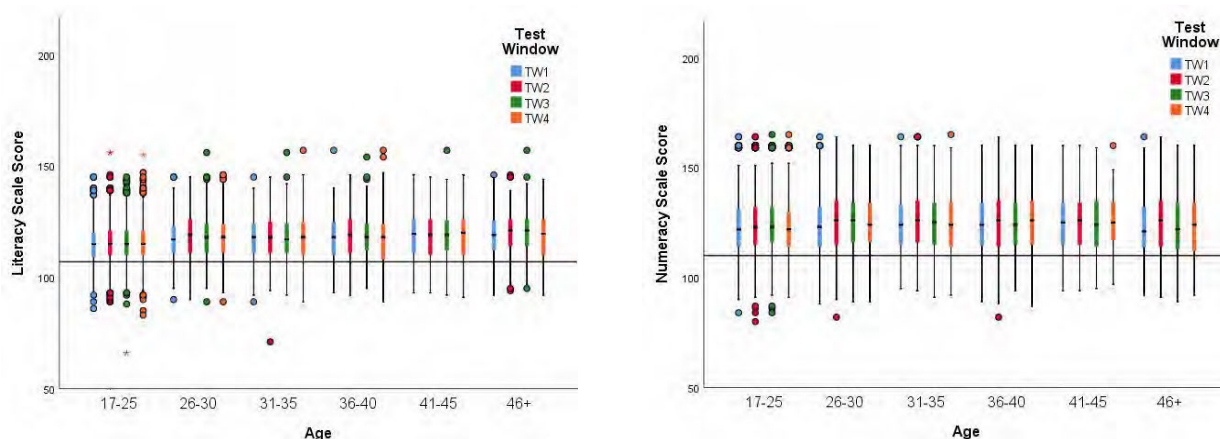


Figure 8: Score distribution by age group and test window

Figure 8 shows that, for both literacy and numeracy, the distributions of the scale scores of the age groups are very similar. Again, median scores were lowest for test window 2.

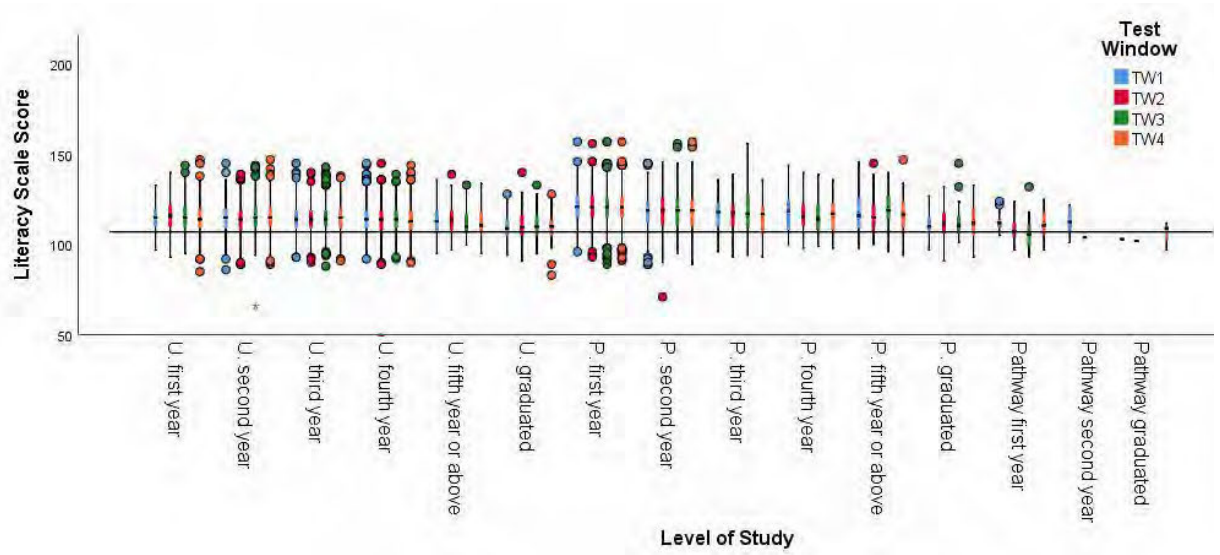


Figure 9: Score distribution by program type, year level and test window – literacy

shows that, for literacy, there are no observable patterns in the scale score distributions of undergraduates except that there is a decline in achievement of candidates after their graduation. There is a stronger downward trend in the distributions of postgraduate candidates. This is primarily due to the higher proportions of resit candidates in the later year cohorts.

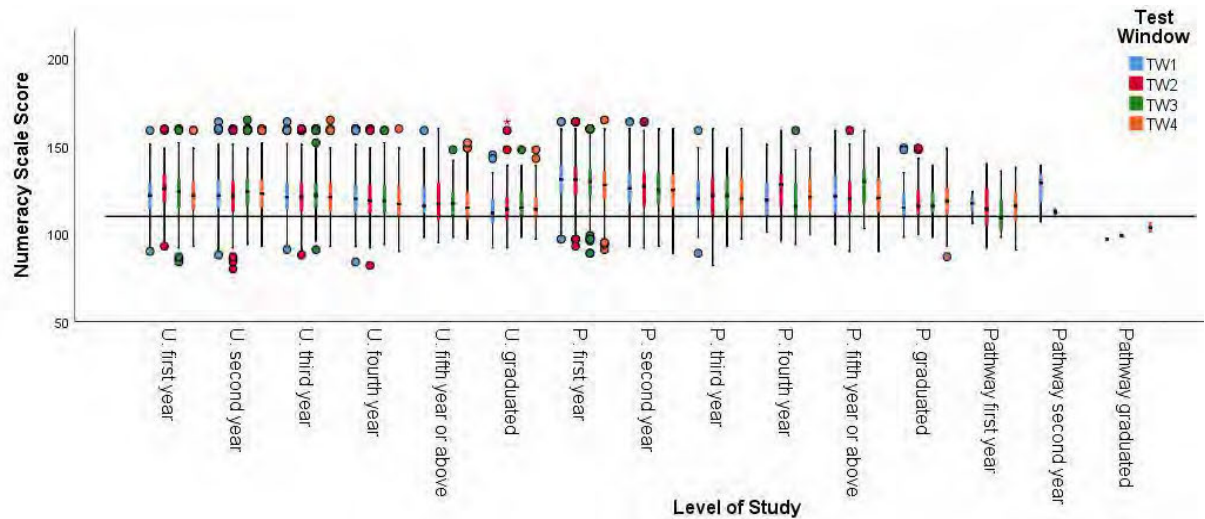


Figure 10: Score distribution by program type, year level and test window – numeracy

Figure 10 shows similar downward trends for numeracy as those shown in Figure 9 for literacy.

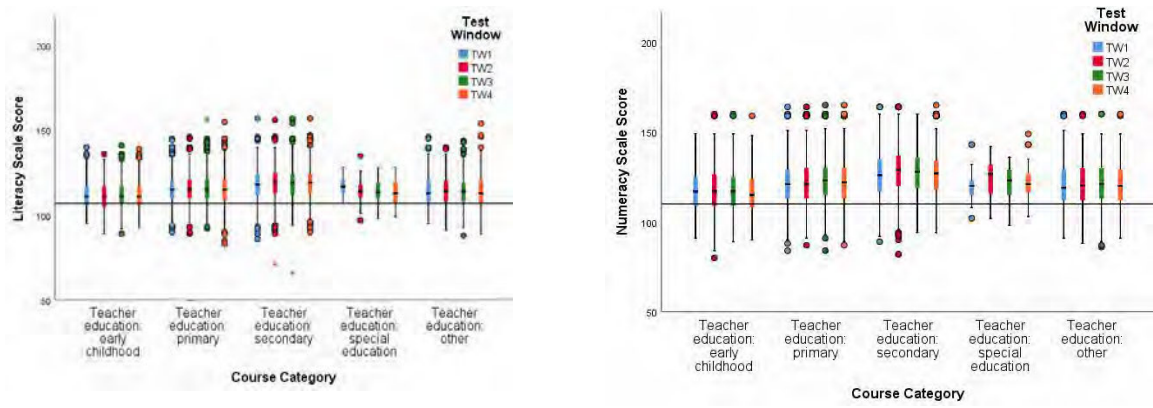


Figure 11: Score distribution by course category and test window

Figure 11 shows that the only observable pattern between test windows in the scale score distributions of the course categories for both literacy and numeracy is for test window 2.

Appendix 5: Performance by test centres and remote proctoring by test window

Table 48 shows performance by location of test centres and remote proctoring in test windows 1 to 4.

Table 48: Performance by test centres and remote proctoring in test windows 1 to 4

Test Window	Category	Literacy				Numeracy			
		N	Mean	S.D.	Pass Rate	N	Mean	S.D.	Pass Rate
TW1	Capital Cities	2983	116.2	8.7	87.0	2953	123.5	12.6	87.0
	Regional Cities	93	117.3	8.5	90.3	90	125.9	11.1	95.6
	Remote Proctoring	2697	115.7	8.7	85.3	2717	122.7	12.0	86.4
TW2	Capital Cities	2760	117.0	9.1	87.6	2662	125.0	12.9	88.4
	Regional Cities	471	117.2	8.7	90.7	450	125.7	13.1	90.0
	Remote Proctoring	2810	115.9	9.0	84.8	2754	123.4	13.1	84.4
TW3	Capital Cities	1458	116.5	8.9	88.4	1401	124.3	11.9	88.7
	Regional Cities	110	117.9	8.2	90.0	114	127.7	12.1	91.2
	Remote Proctoring	3987	116.3	8.7	87.6	3955	124.0	12.0	88.6
TW4	Capital Cities	1195	116.7	8.7	87.7	1233	123.5	12.3	85.6
	Regional Cities	38	118.4	9.1	89.5	28	127.5	12.6	96.4
	Remote Proctoring	4974	115.8	8.9	85.0	4934	123.1	12.1	86.7

There were no clearly observable trends or differences in mean scale scores between categories across test windows 1, 3 and 4, for either component of the test. The mean scale scores were lowest in test window 2, when there was remote proctoring only and a small number of candidates.

Appendix 6: Analysis of differential item functioning

Differential item functioning (DIF) analysis was performed to investigate if there are any trial items that may favour one subgroup over another. DIF analysis was not performed for Indigenous candidates, international candidates, English not as a first language candidates and regional and remote candidates due to insufficient sample size ($n < 50$). Items showing DIF are reported in Figure 12 to Figure 15 and Table 49 to Table 52.

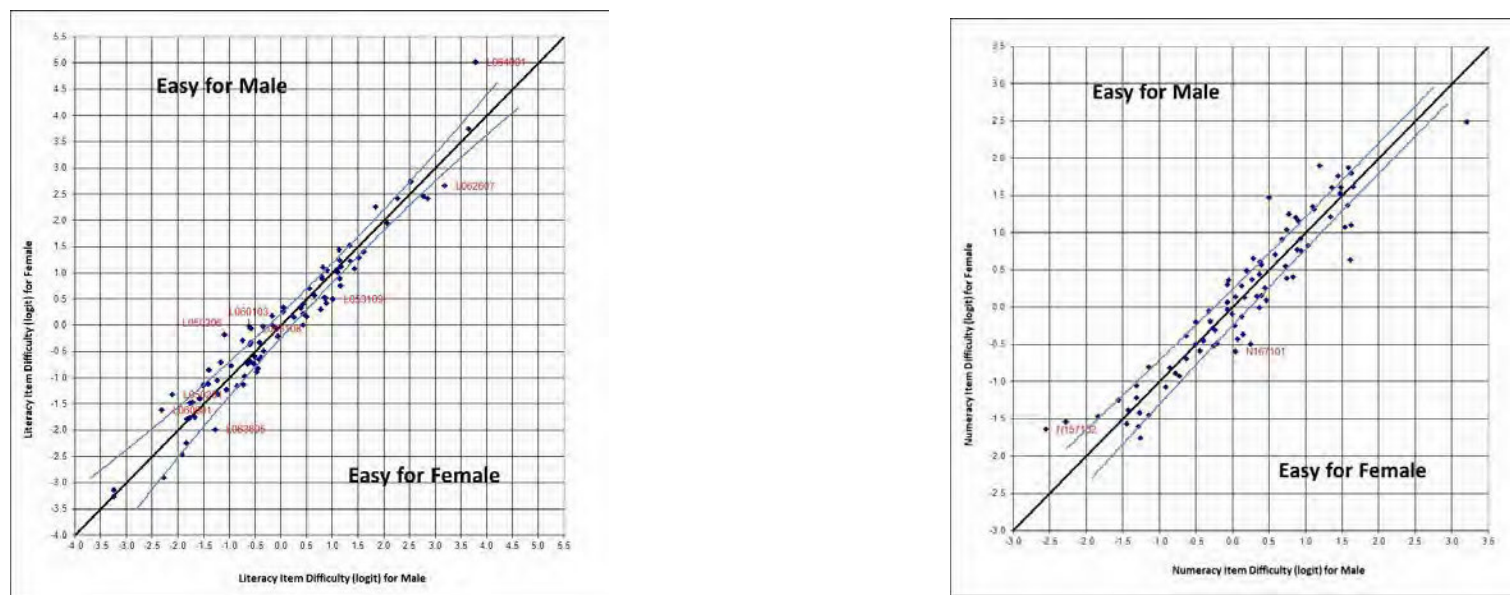


Figure 12: Gender DIF plots

As shown by Figure 12, several trial items are relatively distant from the confidence intervals and these are listed in Table 49. The table shows that, for literacy, of the 88 trial items, three items significantly favoured females (one Technical skills of writing and two Reading) and six items significantly favoured males (three Technical skills of writing and three Reading).

For numeracy, of the 84 trial items, eight items significantly favoured females and four item significantly favoured males. Of the eight items favouring females, four were Number and algebra items, two were Statistics items and two were Measurement and geometry items. Of the four items favouring males, one was a Measurement and geometry item, two were Statistics items and one was a Number and algebra item.

Table 49: List of potential gender DIF items

Item Label	Name	Difference in Item Difficulties (logit) (Male - Female)	Standardised Difference in Item Difficulties (logit) (Male - Female)	Chi-square	Probability	Gender Favoured	Content
L060601	Exhibition Activities	-0.70	-4.0	16.3	0.00	Male	TSW
L063605	School Social	0.71	4.0	16.3	0.00	Female	TSW
L060103	Subject Selection	-0.60	-5.0	25.2	0.00	Male	TSW
L053108	Aldrin College Employment	-0.53	-4.0	15.7	0.00	Male	Reading
L053109	Aldrin College Employment	0.50	4.4	19.8	0.00	Female	Reading
L050201	Data on Disability	-0.79	-3.9	15.1	0.00	Male	Reading
L050206	Data on Disability	-0.93	-6.6	43.8	0.00	Male	Reading
L062607	Graduation Speech	0.52	4.6	20.9	0.00	Female	TSW
L064001	Orientation Letter	-1.23	-6.1	36.8	0.00	Male	TSW
*N167101	First Aid	0.63	4.2	17.9	0.00	Female	Number
*N157102	School Profile	-0.91	-5.1	26.2	0.00	Male	Number
N157201	Language Background	-0.97	-8.0	64.5	0.00	Male	Statistics
*N155101	School Enrolments	0.50	3.9	15.0	0.00	Female	Number
N167601	Holiday Dates	0.74	8.9	79.6	0.00	Female	Measurement
N150301	Carbon Dioxide Concentration	0.71	7.4	55.2	0.00	Female	Number
N157501	Weighted Enrolments	-0.74	-3.9	15.1	0.00	Male	Algebra
N167802	Head Circumference	0.51	4.5	20.7	0.00	Female	Statistics
*N155901	Instalment Amount	0.50	3.9	15.4	0.00	Female	Number
N151002	Pool Capacity	-0.71	-5.9	34.4	0.00	Male	Measurement
N155403	Tiwi Islands	0.97	9.4	89.1	0.00	Female	Measurement

*Calculator not available

Figure 13 shows the DIF plots for age groups (17–25-year-olds compared to 26+-year-olds). There are nine literacy and five numeracy items outside the confidence interval limits for both literacy and numeracy.

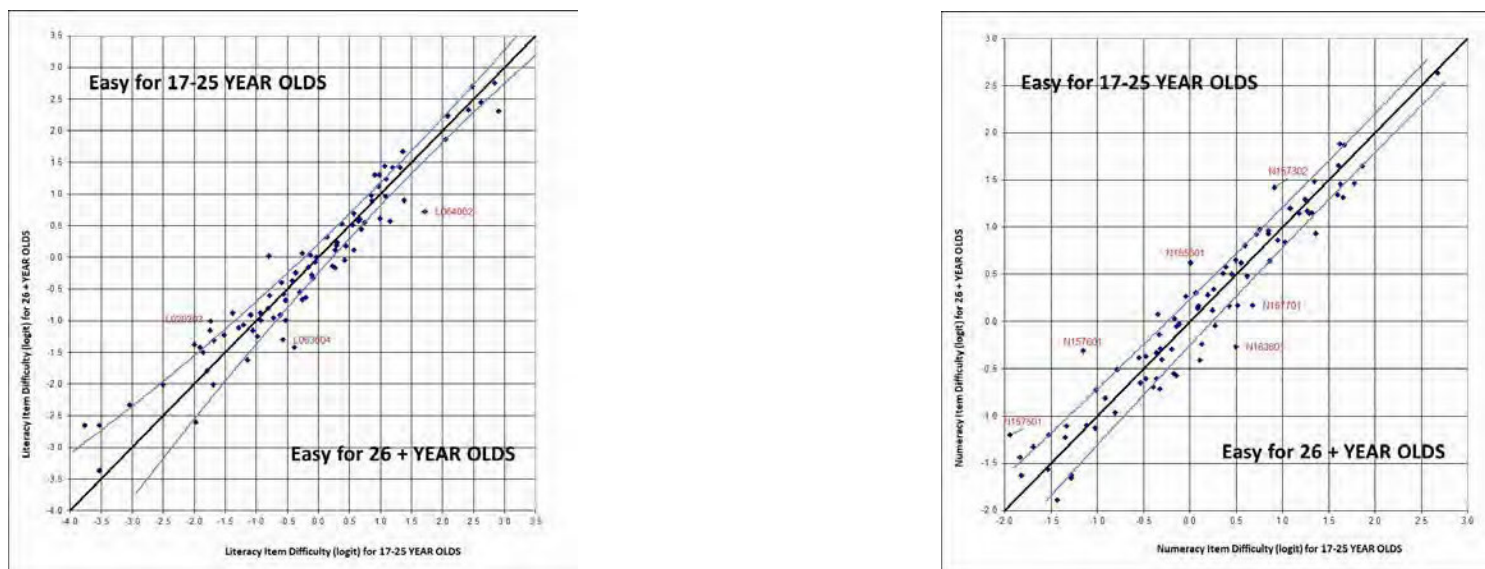


Figure 13: Age group DIF plots

Table 50 lists the trial items with potential DIF by age group. Of the eight literacy items showing significant age DIF, most (five) favoured candidates aged over 25, a similar finding to previous years. This is not a surprising finding given the achievement of candidates on the literacy component tends to increase with age. Of the five literacy items favouring candidates aged over 25, three were Reading items. Of the six numeracy items showing significant age DIF, most (four) favoured candidates aged 17–25. Two were Number and algebra items, one was a Statistics item and one was a Measurement and geometry item.

Table 50: List of potential age group DIF items

Item Label	Name	Difference in Item Difficulties (logit) (17–25-Year-Olds – 26+-Year-Olds)	Standardised Difference in Item Difficulties (logit) (17–25-Year-Olds – 26+-Year-Olds)	Chi-square	Probability	Age Favoured	Content
L020203	Texting and Spelling	–0.60	–4.9	24.4	0.00	17–25 YEAR OLDS	TSW
L050609	Conservation Ethics	1.02	7.3	54.0	0.00	26 + YEAR OLDS	Reading
L050803	Outdoor Learning	0.59	5.9	35.4	0.00	26 + YEAR OLDS	TSW
L050109	Opening Day	–0.82	–5.8	33.1	0.00	17–25 YEAR OLDS	Reading
L050201	Data on Disability	–0.74	–3.7	13.4	0.00	17–25 YEAR OLDS	Reading
L052107	Estonia and PISA	0.59	4.8	23.4	0.00	26 + YEAR OLDS	Reading
L063604	School Social	0.73	6.0	35.9	0.00	26 + YEAR OLDS	TSW
L064002	Orientation Letter	1.00	10.1	101.8	0.00	26 + YEAR OLDS	TSW
N157302	Device Access	–0.51	–5.7	32.4	0.00	17–25 YEAR OLDS	Statistics
N155601	Outdoor Activity	–0.62	–5.0	25.1	0.00	17–25 YEAR OLDS	Measurement
N163601	Charity Donation	0.76	6.1	37.6	0.00	26 + YEAR OLDS	Number
N157501	Weighted Enrolments	–0.75	–3.9	15.5	0.00	17–25 YEAR OLDS	Algebra
*N167701	Auction Price	0.50	4.0	16.0	0.00	26 + YEAR OLDS	Number
N157601	Height Approximation	–0.85	–6.8	46.3	0.00	17–25 YEAR OLDS	Algebra

*Calculator not available

Figure 14 shows the DIF plots for program type (undergraduate compared to postgraduate).

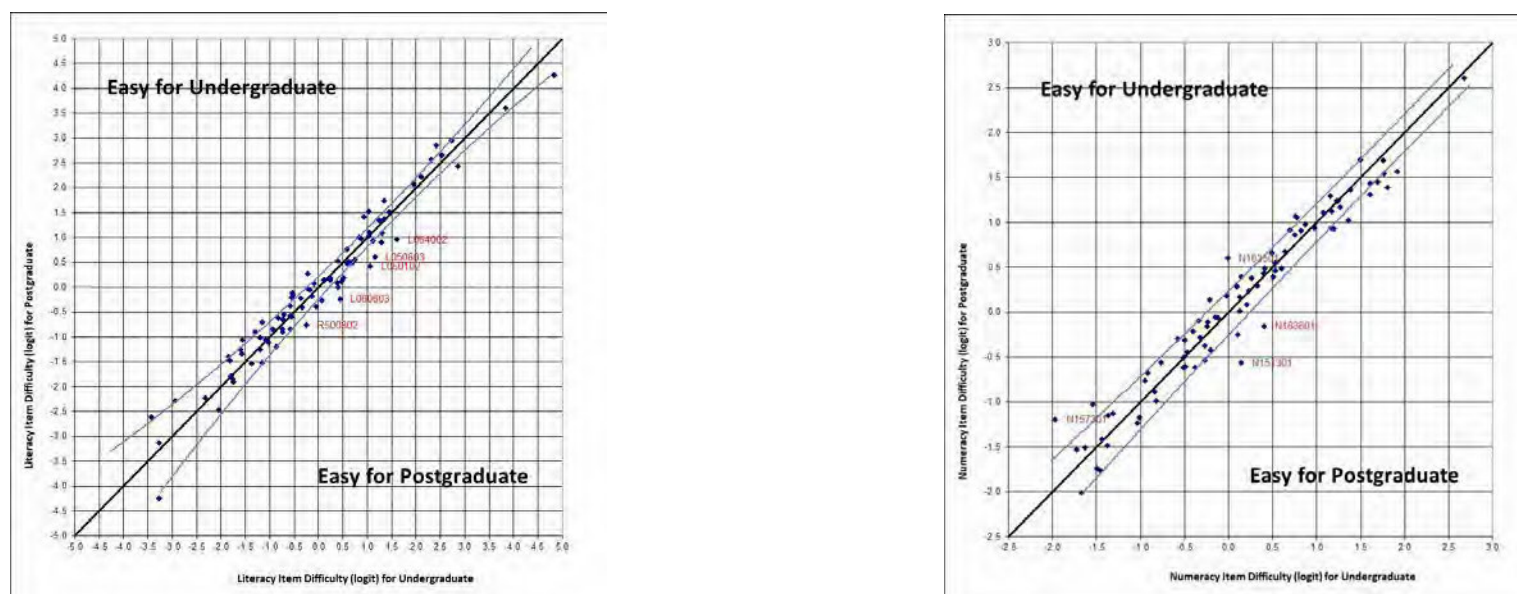


Figure 14: Program type DIF plots

Table 51 lists the trial items with potential DIF by program type. For literacy, all five items showing significant DIF by program type favoured postgraduate candidates. Two of the items were Reading items and three were Technical skills of writing items. For numeracy, there were four items showing significant DIF by program type. Two items favoured postgraduates, two favoured undergraduates.

Table 51: List of potential program type DIF items

Item Label	Name	Difference in Item Difficulties (logit) (Undergraduate – Postgraduate)	Standardised Difference in Item Difficulties (logit) (Undergraduate – Postgraduate)	Chi-square	Probability	Program favoured	Content
L060603	Exhibition Activities	0.66	7.1	50.7	0.00	Postgraduate	TSW
L050803	Outdoor Learning	0.54	5.4	29.4	0.00	Postgraduate	TSW
L050102	Opening Day	0.62	5.7	32.1	0.00	Postgraduate	Reading
R500302	Cognitive Bias	0.51	4.0	16.4	0.00	Postgraduate	Reading
L064002	Orientation Letter	0.64	6.5	42.4	0.00	Postgraduate	TSW
N157301	Device Access	–0.77	–4.7	22.2	0.00	Undergraduate	Statistics
*N163501	Plant Budget	–0.61	–5.2	27.3	0.00	Undergraduate	Number
N163601	Charity Donation	0.56	4.5	20.0	0.00	Postgraduate	Number
N151301	Walking Speed	0.71	5.2	27.1	0.00	Postgraduate	Measurement

*Calculator not available

Figure 15 shows the DIF plots for course category (early childhood & primary compared to secondary).

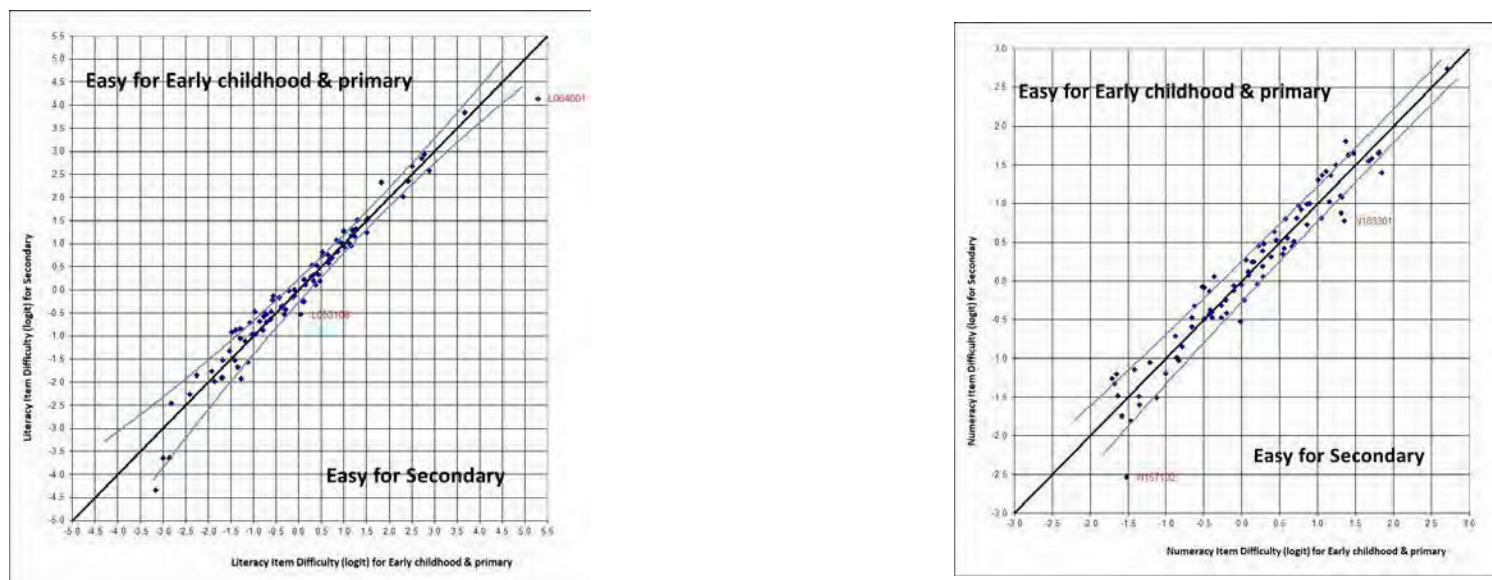


Figure 15: Course category DIF plots

For literacy, it can be seen from Figure 15 that two items significantly favoured secondary candidates. For numeracy, two items significantly favoured secondary candidates.

Table 52 lists the items with significant course category DIF. Of the four literacy items that favoured early childhood and primary candidates, three assessed Reading and one assessed Technical skills of writing. Of the three items that favoured secondary candidates, two assessed Reading and one assessed Technical skills of writing. Of the four numeracy items, the two favouring secondary candidates were a Statistics item and an Algebra item. The two favouring early childhood and primary candidates were both Statistics items.

Table 52: List of potential course category DIF items

Item Label	Name	Difference in Item Difficulties (logit) (early childhood & primary - secondary)	Standardised Difference in Item Difficulties (logit) (early childhood & primary - secondary)	Chi-square	Probability	Course favoured	Content
L053108	Aldrin College Employment	0.57	4.0	15.9	0.00	Secondary	Reading
L064001	Orientation Letter	1.15	5.4	28.6	0.00	Secondary	TSW
*N157102	School Profile	1.01	5.1	26.3	0.00	Secondary	Number
N163301	OSHC Management	0.57	4.6	20.8	0.00	Secondary	Statistics

*Calculator not available

It is worth noting that five literacy items and three numeracy items showed significant DIF for more than one subgroup, as shown in Table 53. The content of these eight items will be further explored and they will be given a low priority for selection and release.

Table 53: List of items showing multiple DIF

Item label	Name	Favoured	Content
L050201	Data on Disability	17–25 YEAR OLDS, Male	Reading
L050803	Outdoor Learning	26+ YEAR OLDS, Postgraduate	TSW
L053108	Aldrin College Employment	Secondary course category, Male	Reading
L064001	Orientation Letter	Secondary course category, Male	TSW
L064002	Orientation Letter	26+ YEAR OLDS, Postgraduate	TSW
*N157102	School Profile	Secondary course category, Male	Number
N157501	Weighted Enrolments	17–25 YEAR OLDS, Male	Algebra
N163601	Charity Donation	26+ YEAR OLDS, Postgraduate	Number

It is also worth noting that some stimulus texts had multiple items showing DIF, as shown in Table 54. This occurred more often with literacy texts mainly because they were associated with larger item sets.

Table 54: List of stimulus texts with multiple items showing DIF

Domain	Component	Item label	Favoured	Content
Literacy	Aldrin College Employment	L053108	Secondary course category, Male	Reading
Literacy	Aldrin College Employment	L053109	Female	Reading
Literacy	Data on Disability	L050201	17–25 YEAR OLDS , Male	Reading
Literacy	Data on Disability	L050206	Male	Reading
Literacy	Exhibition Activities	L060601	Male	TSW
Literacy	Exhibition Activities	L060603	Postgraduate	TSW
Literacy	Opening Day	L050102	Postgraduate	Reading
Literacy	Opening Day	L050109	17–25 YEAR OLDS	Reading
Literacy	Orientation Letter	L064001	Secondary course category, Male	TSW
Literacy	Orientation Letter	L064002	26+ YEAR OLDS, Postgraduate	TSW
Literacy	School Social	L063604	26+ YEAR OLDS	TSW
Literacy	School Social	L063605	Female	TSW
Numeracy	Device Access	N157301	Undergraduate	Statistics
Numeracy	Device Access	N157302	17–25 YEAR OLDS	Statistics