

A woman with brown hair pulled back, wearing a light blue button-down shirt, stands with her arms crossed in a classroom. She is smiling warmly at the camera. The background is a blurred classroom with colorful decorations.

THE PROFESSION AT RISK

**Trends in standards for admission
to teaching degrees**

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Why this analysis is needed

This report analyses trends in academic standards for intakes into Australian initial teacher education programs over the past decade. Academic standards, alongside non-academic standards, provide the cornerstone for professional standards. The social and economic imperatives for the development and maintenance of high professional standards for teachers are clear.

- Teacher effects are large; and perhaps the most malleable of influences in education systems.
- Internationally, all highly effective education systems hold high standards, with benchmarks and quality assurance for the teaching profession.
- Social and economic prosperity is dependent upon education. Because of their role as custodians and nurturers of future generations, teachers, and the profession, hold great importance in society.

It is also clear that, within teacher professional accountability systems internationally, both assurance of high standards and stability in those standards are minimum starting points for successful education systems. Australia has a broad professional standards framework (AITSL, 2019; Alegounarias & Mulheron, 2018). Standards in entry into initial teacher education programs in universities and colleges provide the foundational step in professional standards for teachers.

These terms, assurance and stability, are important. The first, “**assurance**” **requires standards to be, not only high, but also visible, or transparent.** The Australian National School Reform Agreement (2018) sets high standards, confirming the need to “attract and retain the best and brightest to the teaching profession” as a national reform priority. The Australian Institute of Teaching and School Leadership (AITSL) requires transparency, as laid out in their key [principles for national accreditation of initial teacher education programs](#):

7. Transparency – the accreditation process requires transparency across all elements of initial teacher education, from entrant selection to program outcomes. This results in publicly available data that is valid and comparable, as well as clarity for pre-service teachers about what to expect from initial teacher education and, in turn, what is expected of them throughout their course. (AITSL, 2019)

Transparent standards should be easily observed, particularly by those within or aspiring to the profession; and also by all students, their parents and carers.

The second aspiration, **stability, requires the assured standards to be maintained with minimal change over time.** Such is the deep influence of teacher professional standards that, internationally, they are seen as a requirement that should not be tampered with. Any change to professional standards should be made cautiously, with confidence that any change in policy will produce a shift in the right direction and strengthen, rather than weaken, those standards. Knock-on effects from change in professional standards are likely to be slowly but keenly felt, with long-term impacts upon educational outcomes, and economic and social productivity (Leigh & Ryan, 2008). These effects are difficult to turn around, since, unlike other professions, teacher professional standards feed back into the school system, which provides the intake for the profession. Thus, maintaining standards, or lifting them, is likely to create a magnifying effect, lifting educational outcomes and the abilities of future cohorts of teachers. Conversely, declines in standards are likely to create a compounding, cyclical deterioration. This logic, which recognises that standards in teaching provide the foundation for standards in schools, standards among future teachers and consequently the standards



for all professions, is longstanding and supported by educational theory and research. It is, for example, encapsulated in early work of the American Council for Teacher Education, which in 1944 noted:

“The quality of the teachers depends largely upon the quality of their own education, both that portion which precedes and which comes after their entrance into the profession. It follows that the purpose and effectiveness of teacher education must be matters of profound social concern.” (ACTE 1944, p2)

Standards of such importance need to be protected, thus **“stability” requires that professional standards are set high and are maintained.** The metrics around the standards for intakes into teaching, which are for the most part percentile-benchmarked against top performing high school leavers and/or university graduates, should be unchanging. By maintaining the relative percentile position of students entering initial teacher education a country can build strength on strength in educational outcomes.

Among the AITSL principles, the words “rigour” and “relentless” are used to convey the importance of maintaining standards:

3. Rigour – a relentless focus on rigour across all elements of the accreditation process is vital in assuring robust and nationally consistent decisions, as well as the quality of programs and their graduates. (AITSL, 2019, Accreditation of Teacher Education Programs in Australia)

How Australia measures up on these two aspirations, stability and surety, is the focus of this report. The report focuses specifically on one foundational and pivotal aspect of professional standards – entry to initial teacher education programs.

This report presents data analysis to answer three research questions:

1. **What data is available to provide transparency** and document trends over time relating to student educational background and preparation for initial teacher education programs in Australia?
2. **What level of assurance** is evident in academic standards for admission to initial teacher education in Australia?
3. **Are the standards stable** over time?

The picture that emerges from this analysis is deeply concerning. It shows a system in flux, with unstable, declining standards evident in the data available; alongside a lack of transparency relating to a large proportion of the professional intakes. The data trends suggest that Australia’s teacher standards are neither stable, nor assured.

While there are many high achieving Australians entering teaching, the cohort trends suggest that overall standards are much lower than among generations past. More worrying is the smaller, but significant and growing, number of students from the lowest ranks of high school attainment (the bottom 5–10 per cent) that are admitted to initial teacher education programs. Recent public and media attention on this issue may explain a very recent plateauing in the declining trends, but the current intake profile provides a stark contrast to that seen in past generations of Australian teachers. The current Australian initial teacher education intakes do not meet the international benchmark of recruiting teachers from the top 30 per cent of graduating high school cohorts; far from it, the data suggests that



a majority of initial teacher education students are recruited from below the 50th percentile – or are of unknown standard.

While the issue of standards for entry to teaching has been the focus of much recent media and government attention, with a range of policy initiatives developed in response to national review (TEMAG, 2013) and state/territory actions (e.g. KPMG, 2017; NSW DoE, 2013) this analysis suggests that recent initiatives have not been effective in lifting standards. A coordinated, long-term plan is needed to address the root causes of the observed declines.

The vicious cycle of harm such declines in entry standards produce is not easily assessed, but research suggests it is likely to impose a broad, systemic weakening of educational outcomes.

The drivers of the shifts in initial teacher education intakes are complex and deeply enmeshed with professional status – and all that feeds into that, including professional esteem, higher education policy, work conditions and pay. The list is very long. The Australian higher education policy context, with individual students as the unit of funding, plays a pivotal role in the tension between standards and student recruitment to initial teacher education programs.

This report provides a deep analysis of the changing standards seen in Australian initial teacher education to inform long-term strategic planning so that declines can be stemmed, and negative dynamics turned around. In addition, it considers research on the factors contributing to professional status that can help in that task. If such reform can be achieved, assuring stable and high entry standards to initial teacher education, and lifting the status of teaching, the rewards will be compounding and far reaching.



Executive summary of findings

1. The findings of this report are in line with previous research identifying a **clear downward trend in the academic attainment of students entering initial teacher education**. The data available is not sufficient to monitor standards comprehensively, but where ATAR and subject preparation (e.g. level of maths undertaken) data are available they show concerning downward trends; academic standards of intakes are neither stable nor assured.
2. There is a **notable lack of transparency in the monitoring of academic standards** of students entering initial teacher education. ATAR is reported on entry for only 17 per cent of the 2017 cohort, and no other indicators are available. More than 65 per cent of entrants would have an ATAR granted within the past two years but this data is not recorded if entry is on a basis other than ATAR. Over the decade **there has been rapid growth in students entering initial teacher education on a basis other than ATAR**. No other measures are available to monitor academic standards at entry to teacher education programs.
3. Within the limited ATAR data available, the past decade shows **increasing numbers of students entering with low ATARs** (30–50 increased by x5 and 51–60 by x3) and **declining numbers are entering from mid to high ATAR brackets** (71–80 down by 1/5; 81–90 down by 1/3). However, the numbers of students entering from the highest ATAR bracket (approximately 500 nationally) are stable — although declining as a proportion of the total, as cohorts become dominated by lower-attaining students. While it is reassuring that teaching continues to attract this small, high-ability cohort, the diminishing esteem of the profession — possibly fuelled by entrants with weak academic backgrounds — threatens the retention of this small group in the future.
4. **The ATAR trends sit alongside rapid growth in the number of students entering initial teacher education**. This growth is not fully explained by growth in population and school student numbers. Neither is this **growth in commencing students matched by growing numbers completing initial teacher education**. The number of students entering initial teacher education in 2016, when compared with 2006, grew by roughly 4800, but over the same period the number of students completing initial teacher education grew by only 600.
5. The most recent **six-year completion rates for these students are extremely low**. Less than 60 per cent of students complete their course after six years. **There has been a clear downward trend in the six-year completion rates for teacher education**.
6. **Growth in online initial teacher education accounts for an increase in approximately 4000 students** in annual intakes over the 2006 to 2016 period. There has also been **substantial growth in the numbers of students entering from TAFE** (nearly 1200 more in 2016 than in 2006). Although growing, these cohorts have very low completion rates (online courses = 41 per cent, TAFE entry = 50 per cent). It seems reasonable to question whether the growth in initial teacher education is driven by a quest for enrolment numbers; including via pathways that have not been verified as legitimate foundations for the deeply challenging intellectual work of teaching; and through delivery modes that offer cost efficiencies but have not been validated in terms of outcomes and knock-on effects on student achievement.
7. **Low completion rates for initial teacher education are related to academic standards at entry (ATAR), type of program and socio-educational background**. The completion rates are related to ATAR scores (e.g. ATAR 30–50, 3000+ entrants, 58 per cent completed versus ATAR 91–100, approximately 450 entrants, 69 per cent completed in six years by 2016); the mode of the program (external mode (online) approximately 3000 entrants, 41 per cent completed versus internal, approximately 14,800 entrants, 59 per cent completed in six years by 2016) and the type of enrolment (part-time, 3000+ entrants, 36 per cent completed, versus full-time, approximately 6400, 60 per cent completed in six years by 2016).



8. Completion trends suggest that **many students are entering initial teacher education with little prospect of completing the degree**. This also **suggests that the system is highly inefficient**, recruiting students who are not likely to complete their course, and/or providing course design (part-time/online) that increases the likelihood of students failing to complete their course. The costs of this inefficiency go beyond monetary terms, with large numbers of students bearing the psychological weight of failure as well as financial burdens.
9. The three key findings: 1) ATAR declines; 2) poor transparency/incomplete reporting; 3) increases in numbers and declines in completions; suggest that Australia's academic standards for entry to teaching are neither stable nor assured. This situation poses a **serious threat, with spiralling and accelerating dynamics negatively impacting on the esteem of the teaching profession, Australian students' outcomes, and national educational and economic progress**.



The importance of teachers

The importance of teachers cannot be overstated for, in many ways, they are the weavers of society's fabric. The old description of teachers as the parents of all professions is today unscored by the understanding that:

"... it is teachers, more than anybody, who are expected to build learning communities, create the knowledge society and develop the capacities for innovation, flexibility and commitment to change that are essential to economic prosperity in the twenty-first century." (Hargreaves & Lo, 2000, p.168)

A short appraisal of the research and theory on academic standards for teachers is presented here, followed by a precis of research on factors related to teacher standards and examination of the dynamics between these.

Teacher standards and the Australian context

Recent educational research has confirmed the powerful influence of teachers. So called "teacher effects" are among the greatest magnitude effects in education.

"... the most important factor affecting student learning is the teacher. In addition, the results show wide variation in effectiveness among teachers. The immediate and clear implication of this finding is that seemingly more can be done to improve education by improving the effectiveness of teachers than by any other single factor. Effective teachers appear to be effective with students of different achievement levels regardless of the level of heterogeneity in their classrooms." (Wright, Horn, & Sanders, 1997, p63)

There is a growing international evidence base attesting to teacher effects that has emerged since the landmark report Teaching Matters (OECD, 2005). More recently the OECD review of effective teacher policies concluded that "the quality of teachers cannot exceed the quality of the policies that shape their work environment ... selection, recruitment and development" (OECD 2018, p20).

Analysis of policy across high performing education systems found diversity in when and how teacher standards are implemented, but noted:

"... the quality of teachers depends mainly on setting high standards for entering teacher-preparation programmes and for the quality of initial preparation, and on the attention given to the quality of teachers' preparation in selection and recruitment processes." (OECD, 2018, p7)

This understanding applies to Australia and points to the need to maintain a sharp focus on standards at admission to teacher education programs. In their 2014 report Teacher quality: Evidence review, for the Australian government, Naylor and Sayed recognised:

"The systemic development of teacher quality is dependent, first and foremost, on effective teacher recruitment strategies to attract good quality entrants into teaching."

This point is echoed by state, territory and national authorities, which all acknowledge the importance of setting high standards for entry to initial teacher education programs. Currently the national regulator, AITSL, lists seven criteria for initial teacher education program entry (see Figure 1).



Standard 3: Program entry

- 3.1 Providers describe and publish the rationale for their approach to program entry, the selection mechanisms used, threshold entry scores applied and any exemptions used.
- 3.2 Providers apply selection criteria for all entrants, which incorporate both academic and non-academic components that are consistent with engagement with a rigorous higher education program, the requirements of the particular program and subsequent success in professional teaching practice.
- 3.3 All information necessary to ensure transparent and justifiable selection processes for entry into initial teacher education programs, including student cohort data, is publicly available.
- 3.4 The program is designed to address the learning needs of all pre-service teachers admitted, including through provision of additional support to any cohort or individual who may be at risk of not being able to participate fully in the program or achieve its expected outcomes.
- 3.5 Entrants to initial teacher education will possess levels of personal literacy and numeracy broadly equivalent to the top 30% of the population. Providers who select students who do not meet this requirement must establish satisfactory arrangements to ensure that these students are supported to achieve the required standard before graduation. The National Literacy and Numeracy Test is the means for demonstrating that all students have met the standard.
- 3.6 Program entrants must meet the English language proficiency requirements for teacher registration in Australia, either on entry to or on graduation from the program.
- 3.7 Entrants to graduate entry programs have a discipline-specific bachelor or equivalent qualification relevant to the Australian Curriculum or other recognised areas of schooling provision including:
 - a) for secondary teaching, at least a major study in one teaching area and, preferably, a second teaching area comprising a minor study, or
 - b) for primary teaching, at least one year of full-time equivalent study relevant to one or more learning areas of the primary school curriculum.

Figure 1: AITSL standards criteria for entry to initial teacher education programs. Source: AITSL, 2015



The AITSL standards require initial teacher education providers to apply both academic and non-academic criteria to selection of candidates and provide transparent reporting on their selection processes. The majority of analyses described in this report utilise AITSL's annual [initial teacher education data report](#) to examine if academic standards are stable and assured over time.

Why is such an approach necessary? Surely societal expectations of such an important profession include shared understanding of the importance of recruitment to the profession? Indeed, there are few, if any, who would argue against standards for entry to initial teacher education. Points of debate tend to focus on “how” this can be achieved rather than “why” it should be so. Yet, there are now myriad factors, including the funding arrangements of higher education institutions offering initial teacher education, which may, consciously or otherwise, drive actions that counter the preservation of standards. Vocal opposition to the use of ATARs for entry requirements has been growing in recent years, and yet an alternative metric for academic standards has not been put forward.

Also relevant to the context of this study is the growing recognition that globally (except for in a small number of countries) the teaching profession is under threat as teachers unsuccessfully attempt to navigate poor remuneration, public distrust, high-stakes standardised testing and performance competition (Hargreaves, Washington & O'Connor, 2019, p93). With educational transformations most enthusiastically focused around “the learner”, “the technology” or “the curriculum”, the status of teachers, and the importance of their relationships with students, has been largely diminished. In Australia, these dynamics have been acknowledged through a federal parliamentary inquiry into the status of teachers (Parliament of Australia, 2019). Media, government and academic discourse also attest to the recent questioning of professional standards. Given the importance of teaching, and the acknowledged pivotal importance of standards in selecting entrants to teaching, analysis of academic standards is not only warranted – it is critical.

Theory and research on why entry standards are important

Neugebauer (2019) points out the importance of “pre-training characteristics” on the genesis of teacher professional competence and links this to theories of learning. Drawing on Sorensen and Hallinan's (1977) early model of learning, which has most recently been proposed for teacher learning (Kunter et al, 2013; Rolooff-Henoch et al, 2015), he explains that individual characteristics (academic and non-academic abilities) affect the amount of competence a student can acquire within a teacher education course. This position is aligned with much educational research that attests to the importance of prior learning on any subsequent learning at university (Martin, Wilson, Liem & Ginns, 2013). Such theory makes it clear that good teaching is not merely the product of good initial teacher education but is a function of the prior learning and personal characteristics of students entering initial teacher education. Neugebauer concludes: “Against this background, it is essential to investigate who enters teaching.” (2019, p371)

Mapping dynamics between entry standards and other factors

A wide array of research illustrates the relationships between teacher entry standards, teacher graduating standards, teacher pay, and student learning outcomes in schools. Summary points from international evidence are presented below.



Teacher entry standards

There is little Australian academic research examining teacher entry standards, with the exception of a recent study by Wurf and Crof-Piggin (2015), see below. However, a large body of international research has mapped out the relationships noted.

- Research shows that academic **standards** at entry to initial teacher education are **directly related to the graduating standards** of teachers (Darling-Hammond, 2012; Ehrenberg and Brewer, 1994; Kukla-Acevedo, 2009; Boyd, Grossman, Lankford, Loeb and Wyckoff, 2009); and also the nature of initial teacher education programs, as Invargson and colleagues point out:

“Teacher education programs cannot be both remedial programs and high quality preparation programs.” (2014, p66)

- In Australia, the **Australian Tertiary Admissions Rank (ATAR) has been shown to be a predictor of first year grade-point average among initial teacher education students**. Although the prediction was not strong, it was lower than specific measures of motivation and engagement with learning, but more predictive than emotional intelligence (which was not significant). This study is highly relevant but has methodological limitations (the study was at a single university with a cohort that does not reflect the national population and the validity of grade-point average as a relevant outcome measure is questionable).
- **Teacher academic ability (at entry and graduation) is directly related to student outcomes**. (Hanushek, Piopiunik, Wiederhold, 2019; Clotfelter, Ladd & Vigdor, 2006; Goldhaber, 2007; Rockoff, Jacob, Kane & Staiger, 2008; Boyd, Grossman, Lankford, Loeb & Wyckoff, 2009; Rowan, Chiang & Miller, 1997)
- On large international assessments it is evident that **high performing countries focus on recruitment and competitive entry to the profession**. (Auguste, Kihn and Miller, 2010; Barbour & Mourshed, 2007; Ingvarson, Reid, Buckley, Kleinhenz, Masters & Rowley, 2014; Ingvarson et al 2012; Tatto, Krajcik & Pippin, 2013)
- **The international benchmark for entry into initial teacher education suggests recruitment from the top 30 per cent of the graduating age cohort** (Ingvarson, Reid, Bukley, Kleinhenz & Rowley, 2014). Maintaining this benchmark is important for esteem as much as for academic preparedness. As Ripley explains, “... this selectivity is not enough by itself, but it ensures a level of prestige and education that makes great things possible.” (Ripley, 2014, p3)
- There is some international evidence to suggest that **teacher esteem is, in part, set by high and competitive standards of admission to teaching degrees** (Schneider, Estarellas & Bruns, 2019; Chevalier, Dolton & McIntosh, 2007).
- Teacher **academic standards are related to salary premiums for teachers** – and also women’s access to high-skill occupations outside teaching. (Hanushek, Piopiunik, Wiederhold, 2019)



Teacher pay, teacher esteem and other factors

It is not possible to consider the role of academic standards without also considering the esteem of the profession, competitive entry to degrees and professional pay. A wide range of research examines these factors, with some key findings highlighted here.

- Recent analysis across 31 countries found a **clear relationship between teacher academic standards/ cognitive abilities and salary premiums** for teachers (Hanushek, Piopiunik, Wiederhold, 2019). Premiums measure teacher pay relative to their education level and a range of other factors. Australian premiums were the fifth lowest of all the countries examined.
- There is a **clear relationship between teacher pay** (relative to that of other careers and professions and/ or GDP) **and student performance** (Hanushek, Piopiunik, Wiederhold, 2019; Akiba, Chiu, Shimizu & Liang, 2012). This relationship may be mediated by academic standards.
- Within the relationship between teacher pay and student performance the **most predictive element is the increases in pay relative to teacher experience** (Akiba, Chiu, Shimizu & Liang, 2012).
- **High performing countries provide generous salaries at the top of the scale** relative to competing professions and GDP per capita (Hanushek, Piopiunik, Wiederhold, 2019; Akiba, Chiu, Shimizu & Liang, 2012). This has also been shown to be **important in attracting high-ability candidates** to the profession (Goss, Sonnemann & Nolan, 2019).
- There is also some evidence that **teacher esteem and public satisfaction with education, is related to pay** (Sinyolo, D., 2007; Schneider, Estarellas & Bruns, 2019).
- There is a **relationship between graduate/professional pay and entry standards for degrees in Australia** (Chevalier, Dolton and McIntosh, 2007; Leigh, 2012). Using the natural variation in pay scales between states and territories, Leigh finds a 10 per cent rise in starting salary boosts the average aptitude on admission by 6 percentiles. Auguste, Kihn and Miller (2010) find that improving compensation could “dramatically increase the portion of top-third new hires in high-needs schools”.
- **“Increases in teachers’ pay do not appear to have kept pace with those of other professions”** (Australian Productivity Commission report, 2012; Hanushek, Piopiunik, Wiederhold, 2019). Australian teacher pay is comparatively low for experienced teachers and has not risen, unlike that seen in high performing countries; it is this gradient of pay for experience teachers that best predicts student outcomes (Akiba, Chiu, Shimizu and Liang, 2012).
- **Australian teacher esteem is currently low** (Heffernan, Longmuir, Bright & Kim, 2019). Ingvarson points out: “They don’t see a career path that gives high status and recognition to teachers who reach high professional standards” (Ingvarson, 2015). There is now considerable consensus that work satisfaction is also low and declining (McGrath-Champ, Wilson, Stacey & Fitzgerald, 2018).
- **Little attention has been paid to recruitment strategies** (Auguste, Kihn and Miller, 2010; Ingvarson, Reid, Bukley, Kleinhenz & Rowley, 2014). Ingvarson and colleagues surveyed international practice and found **high-achieving countries have stable and effective recruitment policies in place to assure the quality of entrants** to teacher education. Recruitment strategies include: “Making teaching an attractive career option for high academic achievers, matching supply and demand, setting high standards for admission to teacher education programs” (Ingvarson, Reid, Bukley, Kleinhenz & Rowley, 2014, p8).



Visualisation of the dynamics

According to the research noted above, we can visualise a series of cascading and feedback relationships driving the standards and esteem of the teacher profession. The documented declines in Australian standards for entry to the profession drive a negative cycle, with poor outcomes in terms of graduating standards and knock-on effects on student learning in schools.

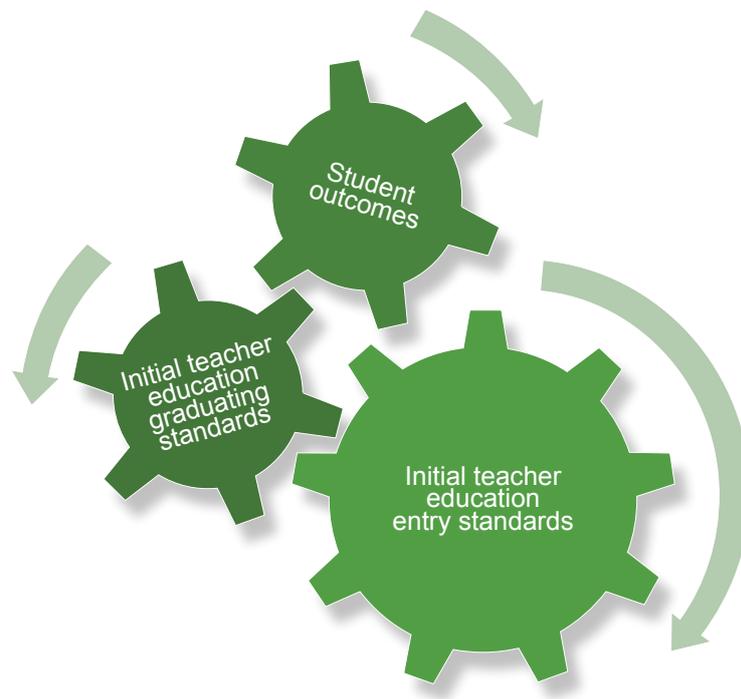


Figure 2: Downward trends in academic standards at admission to initial teacher education impact on initial teacher education graduating standards and student outcomes in schools

In Figure 2, it is important to note that the impact of low initial teacher education entry standards on school student outcomes feeds back into the entry standards to initial teacher education. In other words, the impact of one cohort of low standards into teaching has a knock-on effect on future year 12 graduating cohorts and those school graduates who choose to enter initial teacher education. This vicious cycle makes the trends observed particularly concerning. However, if the direction of the cycle were to reverse, with increasing academic standards entering initial teacher education, knock-on benefits would be seen, with increasing graduate standards, increasing student outcomes and higher levels of attainment among the future applicants to initial teacher education.

In Figure 2, a more positive cascade shows how potential increases in admission standards for initial teacher education, in combination with increases in teacher pay, can contribute to recruitment and competitive entry into the profession. These three together are positive contributors to teacher esteem. In such a case, the relationships seen in Figure 1 can be reversed, so that the rise in academic standards drives a rise in graduating standards and increases student learning outcomes in schools.



Figure 3: Potential rises in teacher esteem from increased standards at entry to initial teacher education, recruitment/competitive entry to the profession and professional pay for teachers

The dynamics seen in Figure 3 are not only reported in empirical research but observed in international comparative assessments of education policy. In particular, the OECD noted of high performing systems:

“By raising the bar to enter the teaching profession, these [high performing] systems discourage young people with poor qualifications from entering teaching and attract people with high qualifications. Capable young people who could go into high status occupations are not likely to enter an occupation that the society perceives as easy to get into and therefore likely to attract people who could not get into more demanding occupations.” (OECD, 2011, p236)

Putting together the dynamics seen in Figures 2 and 3 we can conclude that poor teacher pay (particularly in relation to gradient and premium) and the lack of a recruitment strategy and competitive entry, alongside initial teacher education institutional practices that pursue the revenue attached to university enrolments, may all contribute to low university entry standards for teaching degrees. Research suggests this detrimental situation will affect the quality of initial teacher education graduates and have a negative effect on school student outcomes.



Analysis of standards at entry to initial teacher education

This analysis presents background on the Australian initial teacher education context, then examines the academic standards of admission, via ATAR data, and success and completion patterns. Additional detail on Australian initial teacher education is available from the Australian Institute of Teaching and School Leadership, which publishes annual [ITE Data Reports](#) and the statistical data that has enabled analysis of the trends over time presented in this report.

Initial teacher education in Australia

In Australia, initial teacher education programs are delivered across 85 campuses (52 metropolitan and 33 rural locations). There has been growth in the number of students studying initial teacher education, with more than 5000 additional students commencing initial teacher education degrees in 2016 than in 2006. Figure 4 shows the growth in the number of students entering initial teacher education each year. The 2016 intake is approximately 20 per cent larger than the 2006 intake. Some of this growth, about 12 per cent, can be explained by growth in school-aged population (ACARA, 2019). Later analysis shows that much of the growth has occurred in external (online) initial teacher education programs, which increased annual intakes by approximately 4000 students over the same period (see Figure 9).

While some of this growth is commensurate with Australia's overall population growth and demographic shifts that produce increasing workforce demands upon the profession, it is interesting to note that although intakes have grown, over the decade there has been little change in terms of student completions. For example, in 2006 there was an intake of 25,000 and a completing cohort of 17,000; 10 years later the intake had risen by 5000 to approximately 30,000 but only an additional 592 students completed their initial teacher education degrees. This trend is observable year on year. From 2016 to 2017, the intake rose by 1571 students; however, the completion rate rose by only 703. As a proportion of commencements six years earlier, the completions in 2017 are only 65 per cent of that number.

Commencements and completing initial teacher education student numbers 2006–2016

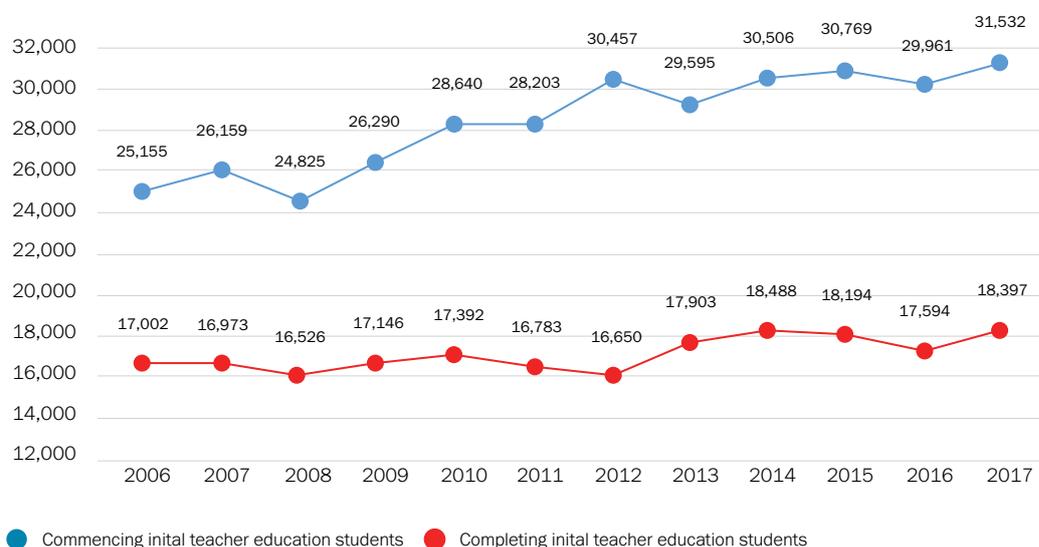


Figure 4: Trends in initial teacher education commencement and completion student numbers



Of course, there is a lag when tracing commencing cohorts to their completions rates and we are yet to see the completions for recent cohorts. Completion rates are examined in more detail later in this report. However, the commencement to completions trends in Figure 4 raise questions about the nature of the intakes in initial teacher education. With growth in numbers evident we need to ask: "Are these numbers appropriate to demand? Where has the growth occurred? What characterises the shifts in student numbers?"

Weldon (2015, 2018) points out that little is known about the demand, supply and attrition rates in Australia, although growing population demands are evident, there remains a lack of data and planning for workforce planning. There is also substantial misinformation propagated, particularly in relation to early career teacher attrition (Weldon, 2018), so it is difficult to know whether the completion numbers here are appropriate.

The total cohort size currently sits at around 30,000 initial teacher education entrants each year. Roughly two-thirds of initial teacher education students commence an undergraduate qualification and one third commence postgraduate study. The breakdown of student numbers in undergraduate and undergraduate programs initial teacher education is provided in Figure 5. Trends in undergraduate and postgraduate commencements and completions are evident in Figure 6.

Total commencements in initial teacher education by level of qualification 2006–2016

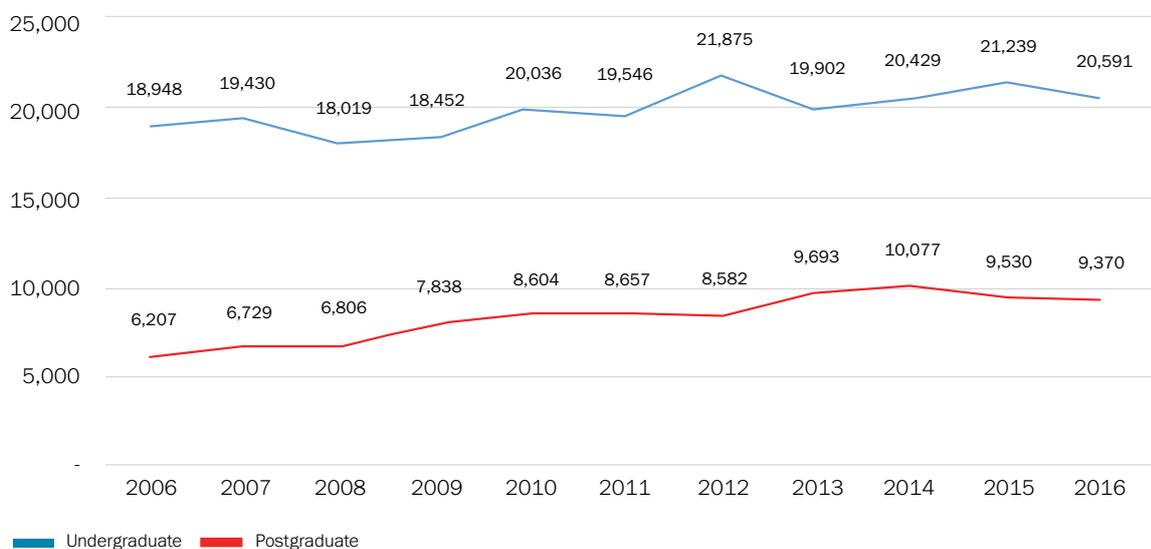
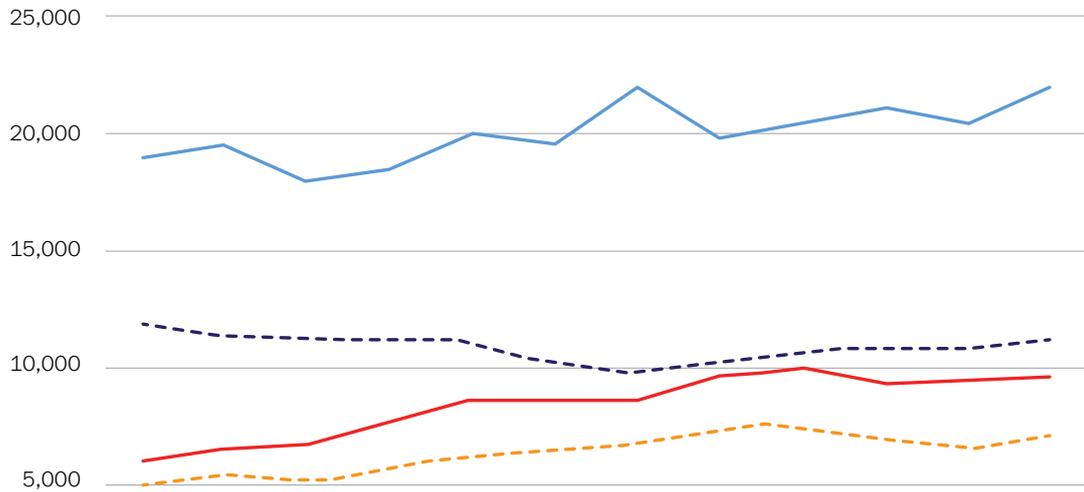


Figure 5: Growth in undergraduate and postgraduate initial teacher education



Trends in commencements and completions by degree level



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Undergraduate	18,948	19,430	18,019	18,452	20,036	19,546	21,875	19,902	20,429	21,239	20,591	21,924
Postgraduate	6,207	6,729	6,806	7,838	8,604	8,657	8,582	9,693	10,077	9,530	9,370	9,608
Undergraduate completions	11,803	11,439	11,333	11,323	11,075	10,230	9,860	10,391	10,816	10,977	10,870	11,262
Postgraduate completions	5,199	5,534	5,193	5,823	6,317	6,553	6,790	7,512	7,672	7,217	6,724	7,135

Figure 6: Trends in entry to undergraduate and postgraduate initial teacher education programs

Undergraduate students still make up the large majority of initial teacher education cohorts, however proportionately there has been more growth in postgraduate programs than in undergraduate programs over the past decade. The proportionate decline in completions is different among undergraduate and postgraduate initial teacher education programs. Postgraduate programs have much lower numbers, but they are growing and have better completion to commencement ratios – more of these students are likely to complete. The completion rates among undergraduate programs are low and declining, despite apparent growth in overall undergraduate numbers. Again, the commencement and completion trends suggest that many students are entering initial teacher education but not completing it. In 2018 the gap between entrants and completions was 13,135. Later in this report six-year completion rates provide a more detailed analysis of these low completion trends. However, there are already clear indications that there have been limited returns on the investment providing initial teacher education programs to larger and larger numbers of students. The costs of these programs are supported by Commonwealth funding, via Commonwealth-supported places; and also by students who make a substantial commitment with some up-front costs and by taking on Higher Educational Contribution (HECS) debts. There are also very substantive investments of personal time, effort and emotional labour to consider. Later analysis will show that the low completion rates are related to low ATAR standards at intake, and characteristics of initial teacher education programs. The AITSL data also shows small declines in the proportion of applicants placing initial teacher education as their first university course preference, see Figure 8. There were approximately 4000 more first preference applications in 2013, than there were in 2016. Diminishing numbers of first preferences for teacher education, may reflect a decline in the profession’s status. Figure 7 also shows small proportionate declines in the number of total offers, including among



those with initial teacher education as their highest preference. Despite these trends, which relate only to recent school leavers using the various ATAR systems (e.g. UAC in NSW /ACT and VTAC in Vic.), it is clear that the overall number of students commencing is increasing.

Total commencements in initial teacher education and higher education, 2013–2016

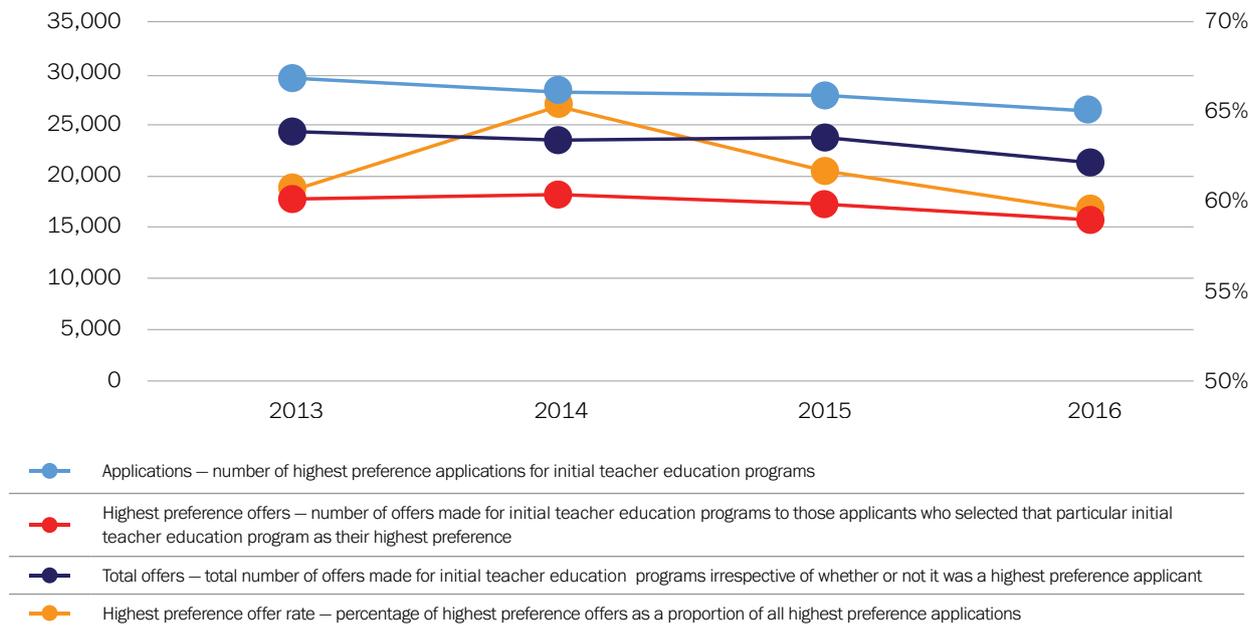


Figure 7: Trends in application preferences for initial teacher education

The profile of teacher education students in terms of social diversity is shown in Figure 8, where it is compared to the total higher education student data. It is evident that initial teacher education programs admit a higher proportion of students from low socio-economic status and from regional or remote geographic locations.



Proportion of domestic commencements in initial teacher education and all higher education by equity status, 2016

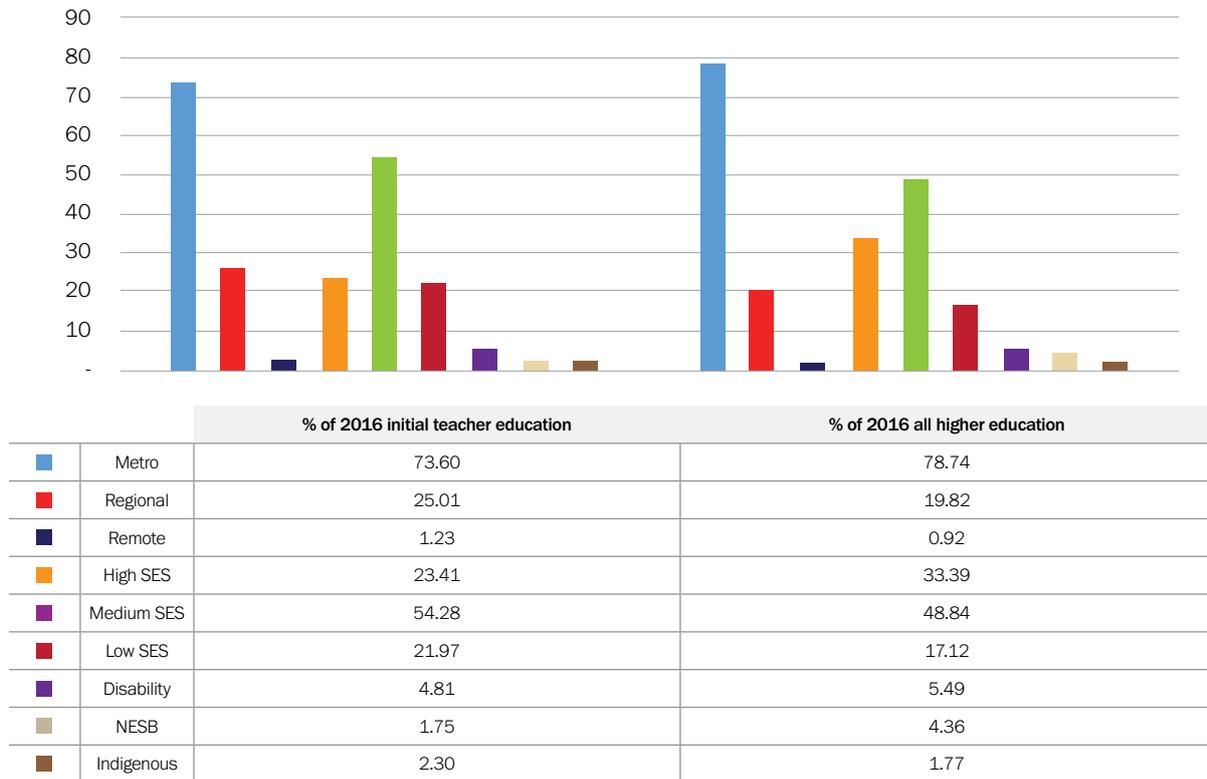


Figure 8: Equity and diversity among initial teacher education and other degree commencements

The growth in initial teacher education student numbers is related to trends in the type and mode of program, see Figure 9. Internal, face-to-face, full-time students account for the large majority of current students; however, since first recorded in 2007, AITSL data shows that the proportion of students undertaking initial teacher education face-to-face on campus has declined by 16 per cent, while there has been 10 per cent growth among those taking online-only courses and 7 per cent growth among those taking blended courses. In 2016, 60 per cent of students studied on campus, 25 per cent online and 16 per cent in blended mode.

The shift toward online initial teacher education is examined in a 2018 [AITSL 'research spotlight' report](#), which shows that uptake of online initial teacher education has more than doubled since 2007. The yearly intakes of external/online students have grown by 4400 over the decade. This accounts for a large share of the 5000 additional annual initial teacher education commencements seen over the same period. Research is needed to assess whether the academic standards of initial teacher education students are associated with their choice of online or campus-based initial teacher education program. Data linking the mode of course to initial teacher education ATAR scores of undergraduate student entrants is not currently publicly available but should be examined for the monitoring of admission standards.



Initial teacher education commencements by type and mode

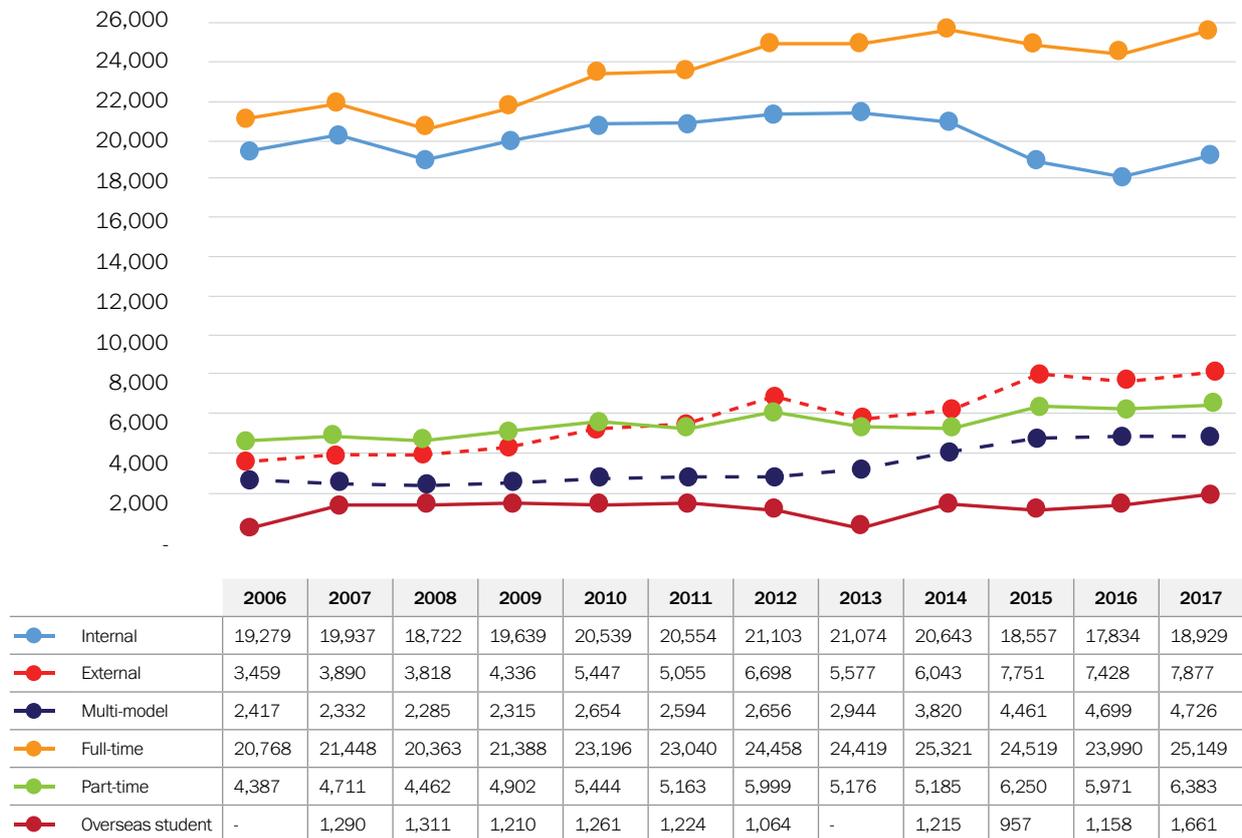


Figure 9: Growth in full-time, external and multimodal initial teacher education students

Summary of trends

- There has been growth in initial teacher education student numbers, mostly among online initial teacher education programs, which now account for one in four initial teacher education students.
- There has not been commensurate growth among the numbers of students completing initial teacher education.
- There have been slight declines in applications to initial teacher education and the proportion of students entering with an initial teacher education program as their first preference degree choice.
- Initial teacher education courses show higher proportions of students from medium and low socio-economic status, than among university students more generally.



Initial teacher education student ATAR

The ATAR is currently the national indicator of academic standards among those entering initial teacher education undergraduate programs (the largest group). Entry to postgraduate programs is based on academic performance in undergraduate degrees, which supersedes the relevance of school achievement measured by ATAR.

Universities report the ATAR for each undergraduate student who enters on the basis of their ranking, however the proportion of students who enter on an alternative basis is high and has risen dramatically over the past two decades. Because of this, transparency on the academic standards is extremely limited. Figure 10 shows how the numbers break down in terms of entry to initial teacher education. Those proportions of the cohort with no academic data recorded to monitor standards are marked in red.

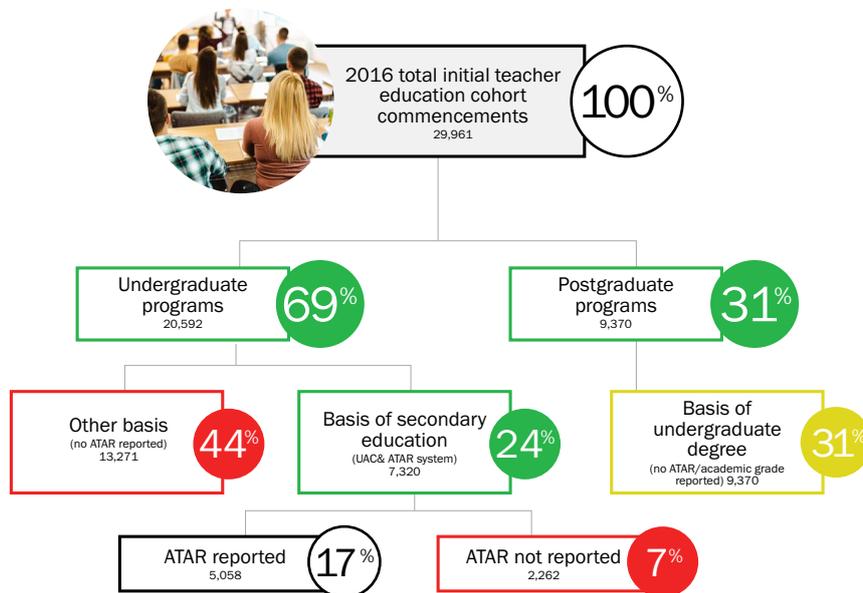


Figure 10: Entry and basis for admission to initial teacher education in 2016

Postgraduate entry standards

There is no data available on the academic standard of those entering postgraduate degrees, other than identifying the degree and field of education. Although all of these postgraduate entrants have degree qualifications, the increasing number of students with low ATAR scores across a wide range of university programs raises the likelihood that some entered their undergraduate degree with very low ATARs. There are myriad issues relating to the reliability, validity and comparability of university grades (and grade-point averages) that make them poor indicators for the monitoring of standards; and, with the data currently available, it is not possible to assess the postgraduate initial teacher education cohort against population referenced metrics needed for best practice in the maintenance of standards. Presumably students with low ATAR at entry lift their academic attainment, in order to complete their degree program, however there is currently no evidence to support this assumption. Successful degree completion can be taken as an absolute indicator of academic achievement; however it does not provide data that can be compared to age cohort norms that are considered necessary for the maintenance of high entry standards in many successful education systems.



Undergraduate entry standards

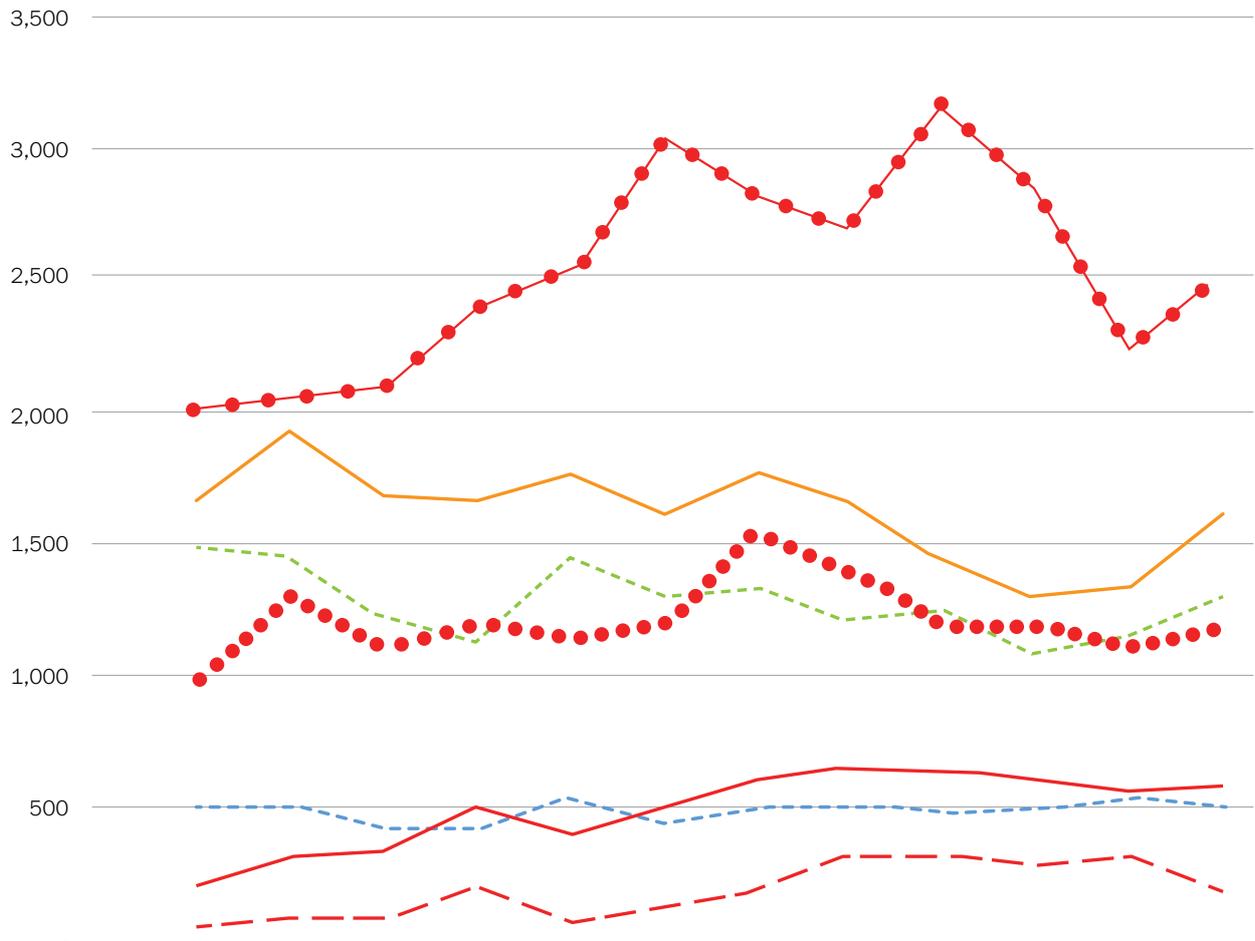
In relation to undergraduate programs, it is important to note that 44 per cent of the entire initial teacher education cohort, and nearly two in every three students entering undergraduate programs, enter via admissions systems other than the University Admissions Centre's ATAR system. Presumably many of these are recent school leavers, however no data is reported publicly, or to the Commonwealth Department of Education or AITSL, on their academic credentials. A significant proportion of initial teacher education providers do not utilise the University Admissions Centre and ATAR admissions systems for any student entrants. Among students who do enter undergraduate programs via the University Admissions Centre system (24 per cent) there is also a notable proportion (about a third of that group and 7 per cent of the total cohort) for whom ATAR data is not recorded.

It is the 17 per cent of undergraduate students who entered on the basis of secondary education with their ATAR recorded (denoted by the assessment picture) that we will now explore – as they are the only group for which data on academic standards is available. The small proportion of students in this category illustrates how transparency regarding standards at entry to initial teacher education is a serious problem.

If we consider data that can evaluate students against the international benchmark for standards (requiring students to sit within the top 30 per cent of their graduating high school/age cohort) that data is available only for this small 17 per cent of initial teacher education students. Figure 11 shows the decadal trends among that ATAR data; and also shows the growth of students who enter via the Universities Admissions Centre and ATAR but have no ATAR recorded. Transparency is poor and declining. Even if we add the small undergraduate ATAR group to student numbers entering postgraduate programs (for which there is confirmation of degree status but no detail on grades, or relative benchmarking against their age cohort) the proportion of total initial teacher education students for which there is data on academic standards is just 48 per cent.



ATAR status for domestic undergraduate students who were admitted on the basis of their secondary education, initial teacher education, 2006–2017



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
--- 30-50	57	84	87	190	78	131	189	321	320	288	319	183
— 51-60	212	314	336	493	395	507	611	644	638	615	569	585
●●● 61-70	983	1,308	1,109	1,201	1,148	1,197	1,548	1,403	1,204	1,199	1,126	1,193
— 71-80	1,669	1,936	1,699	1,668	1,770	1,617	1,760	1,665	1,446	1,304	1,343	1,624
--- 81-90	1,493	1,460	1,222	1,135	1,448	1,301	1,341	1,214	1,244	1,080	1,159	1,307
--- 91-100	499	500	425	424	543	447	492	509	491	507	542	510
●●● Students without ATAR	2,014	2,066	2,103	2,389	2,522	3,047	2,821	2,708	3,163	2,848	2,262	2,534

Figure 11: ATAR of initial teacher education students admitted to undergraduate programs 2006 to 2017



Figure 11 shows a **rapid rise, but then recent fall, in the number of students entering with no recorded ATAR**. The recent decline may be in response to recent media scrutiny on this issue. However, **those without ATAR remain the largest group and there is very limited transparency on academic standards for admission**. The decrease in students with no ATAR recorded in this group is offset by the growth of those entering undergraduate initial teacher education on “other basis” with no ATAR recorded, as this group now makes up 44 per cent of the entire cohort.

A 2018 report, leaked to the media (Robinson, 2018), provides some **clues to the ATAR of those students who enter on the “other basis”**. That report documented high numbers of extremely low ATARs, including many below 30 and as low as 0, entering initial teacher education programs in NSW. The leaked data also showed that 25 per cent of those students had not studied mathematics in year 12. Additional details are available here.

There is **stability among the number of students entering with the highest ATARs (91-100)**. Teaching continues to attract approximately 500 students per year from this bracket. However, these numbers are small and represent a shrinking proportion of entrants to initial teacher education.

There are **declines in the numbers of students from the 71-80 and 81-90 ATAR brackets**. These students are within the top 50th and 30th percentiles groups respectively. Students with ATARs of 71–80 are the largest group, these students come from between the 50th and 30th percentiles. The data provides **very little assurance that students meet the international benchmark**. Only 21 per cent of students with an ATAR, have an ATAR of 80 or above and meet the international benchmark standard. These students are only a small proportion of total initial teacher education entrants, and the **benchmark can only be assured to have been met in 3.5 per cent** of the initial teacher education **intake**.

There is growth in the number of students entering initial teacher education with ATARs below 70 (the 50th percentile). With more than **five-fold growth in those with ATARs 30–50** (between the bottom 25th and 8th percentiles); more than **doubling of numbers with ATARs 51–60** (between the 25th and 40th percentiles); and **smaller, but significant growth among those with ATARS 61–70** (between the 40th and 50th percentiles). More than 58 per cent of recent school leavers entering initial teacher education come from below the 50th percentile, or are of unknown academic standard.

The dramatic shifts in the ATAR profile of the students entering initial teacher education over the past decade is best illustrated in Figure 12, which contrasts the 2006 ATAR profile with that of 2016.



ATAR status for domestic undergraduate students who were admitted on the basis of their secondary education, initial teacher education 2006–2016

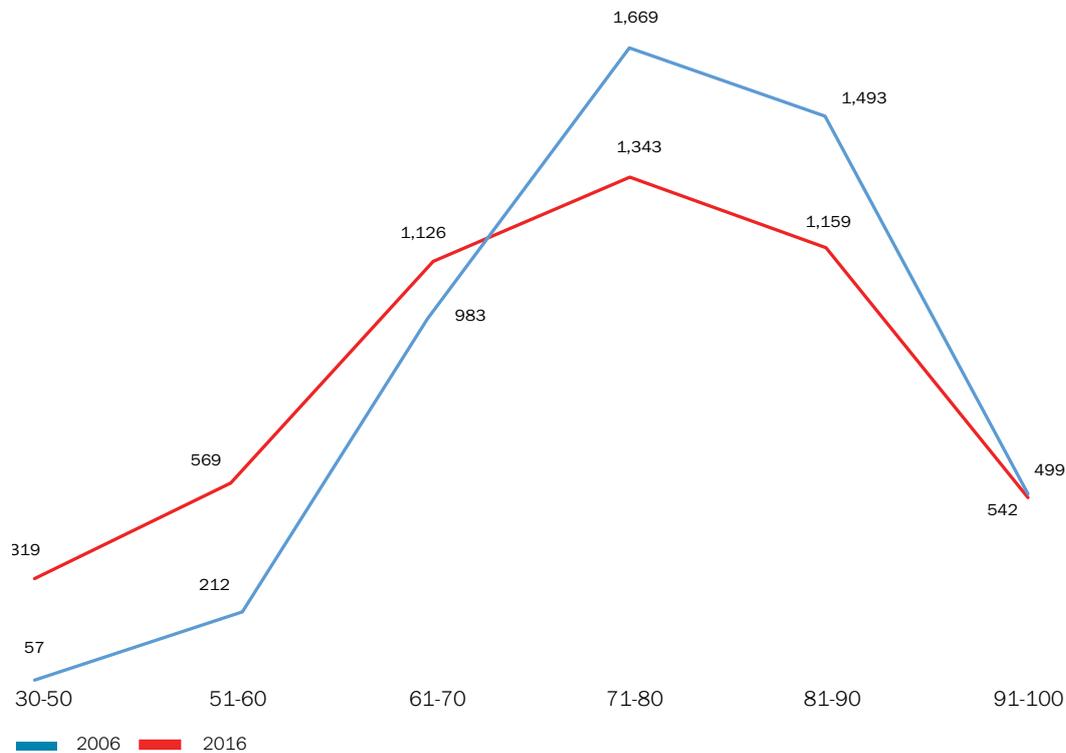


Figure 12: Shift in ATAR profile from 2006 to 2016

Summary of trends

- The ATAR data trends expand upon the earlier conclusion, that the system is not fully transparent, by confirming that within limited available data there are serious declines in standards.
- The magnitude of the shifts in standards is large, and there is neither stability nor assurance available on the standard of academic entry to initial teacher education programs in Australia.

Success rates and completion rates in initial teacher education

Given concerns regarding the academic standards of intakes, it seems reasonable to now ask: "How are students, including those with low ATARs, progressing within initial teacher education courses?" Progress through initial teacher education, and other, degree programs is reflected in a range of indicators, including:

- I. **Completion rate** = the number of students completing the course within a particular time frame (usually reported in terms of six years)
- II. **Success rate** = student load passed/student load certified (passed/failed/withdrawn). Success rate measures academic performance by comparing the effective full-time student load (EFTSL) of units passed to the EFTSL of units attempted.



III. **Success ratio** = success rate of equity students/success rate of other students. Exception: low SES group.
 Success ratio of low SES = success rate of low SES/success rate of higher SES.

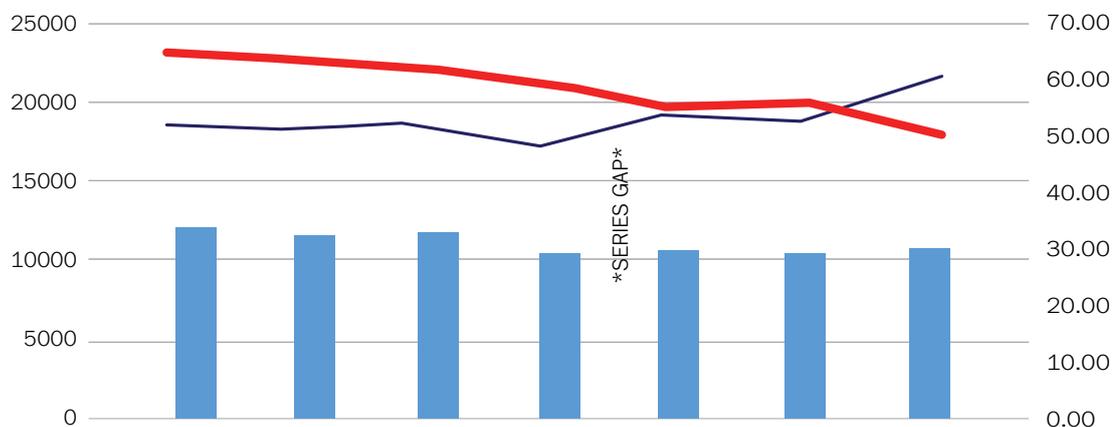
IV. **Attainment rate** = award course completions of equity students/all domestic award course completions.

In this section, patterns in these indicators are analysed; although “success ratio” and “attainment rate” data for initial teacher education is not available in the AITSL, Department of Education or Australian Bureau of Statistics data sets.

As noted earlier, the number of students completing initial teacher education programs, relative to the number of students entering them is relatively low; and different completions patterns were seen for undergraduate and postgraduate students. Figures 13 and 14 show these trends in detail. In both figures there are **evident declines in the percentage of completions**, despite a rise in the number of commencements and relative stability in the numbers graduating within the initial teacher education programs.

The **completion rates are much higher for postgraduate programs than for undergraduate programs**. Declines in six-year completions are steepest among courses, which have seen more growth over the decade, but which also have higher completion rates. Completion rates are notably low in undergraduate programs, at 65 per cent for the 2005 cohort and dropping to just more than 50 per cent for the 2012 entrants. It should be noted that because the trends relate to six years from entry, the latest data available is for the 2012 intake. Data for 2009 is not publicly available in the AITSL Teacher Data Reports because of changes in reporting.

Trends in undergraduate initial teacher education 6-year completion rates



	Initial teacher education 2005 cohort UG	Initial teacher education 2006 cohort UG	Initial teacher education 2007 cohort UG	Initial teacher education 2008 cohort UG	Initial teacher education 2010 cohort UG	Initial teacher education 2011 UG	Initial teacher education 2012 cohort UG
Completed same program	12,178	11,577	11,740	10,490	10,650	10,538	10,848
Total commencements	18,733	18,163	18,778	17,423	19,322	18,857	21,382
% 6-year completions	65.01	63.74	62.52	60.21	55.12	55.88	50.73

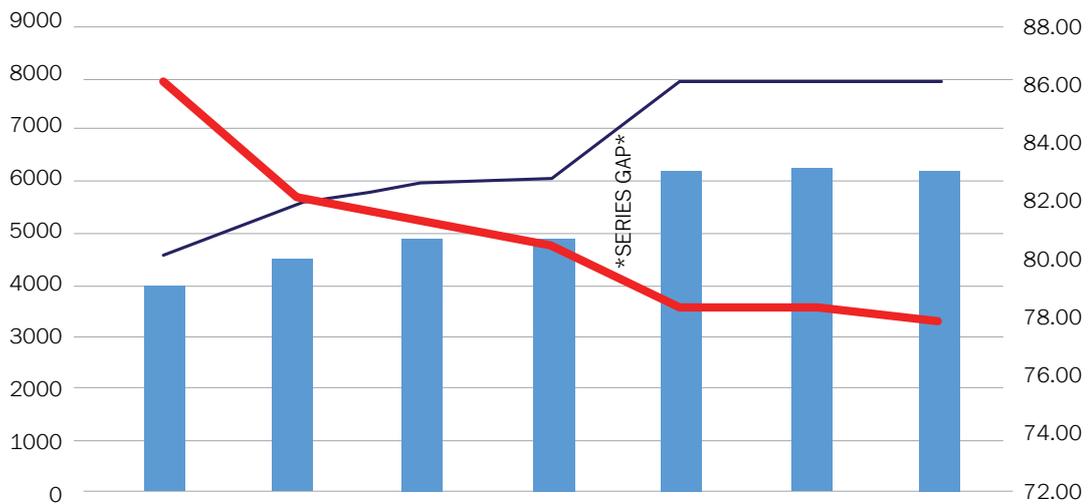
Figure 13: Trends in undergraduate (UG) initial teacher education completions



The trends in Figures 13 and 14 show increasingly large proportions of students entering initial teacher education degrees do not complete their programs. **In 2018, only 51 per cent of the students who started undergraduate initial teacher education in 2012 had completed their program;** although among the much smaller postgraduate group a higher 78 per cent had completed. Figures 15 and 16 document the exact number of these intakes and completions, including detail on the number of students dropping out or still enrolled after six years.

For undergraduate programs there are clear trends. **Although the number of students entering undergraduate programs in annual intakes has grown by more than 2600 students, the number completing these programs has actually fallen** (from 12,178 in 2005 to 10,538 in 2012). This is a disturbing trend that suggests lower and lower returns are being reaped for higher and higher investment in undergraduate initial teacher education; and with untold personal costs. It is also clear that the **numbers of “hangers on” who are still enrolled after six years of study has more than doubled.** Comparing the 2005 and 2012 cohorts we can see that more than a thousand more students dropped out of the later cohort. There is a very similar pattern among the postgraduate drop outs in those same years, although the numbers of “hangers on” are much lower and the overall completion rate much healthier.

Trends postgraduate initial teacher education 6-year completion rates

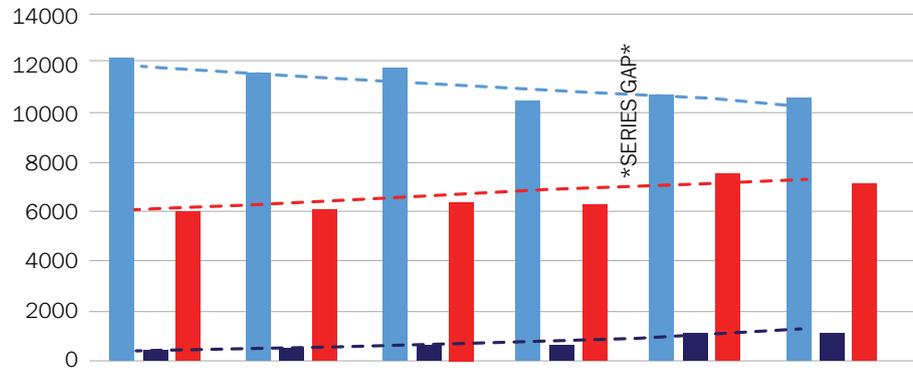


	Initial teacher education 2005 cohort PG	Initial teacher education 2006 cohort PG	Initial teacher education 2007 cohort PG	Initial teacher education 2008 cohort PG	Initial teacher education 2010 cohort PG	Initial teacher education 2011 cohort PG	Initial teacher education 2012 cohort PG
Completed same program	3,990	4,543	4,865	4,889	6,207	6,265	6,200
Total commencements	4,639	5,525	5,978	6,076	7,927	7,997	7,959
% 6-year completions	86.01	82.23	81.38	80.46	78.30	78.34	77.90

Figure 14:Trends in postgraduate (PG) initial teacher education completions



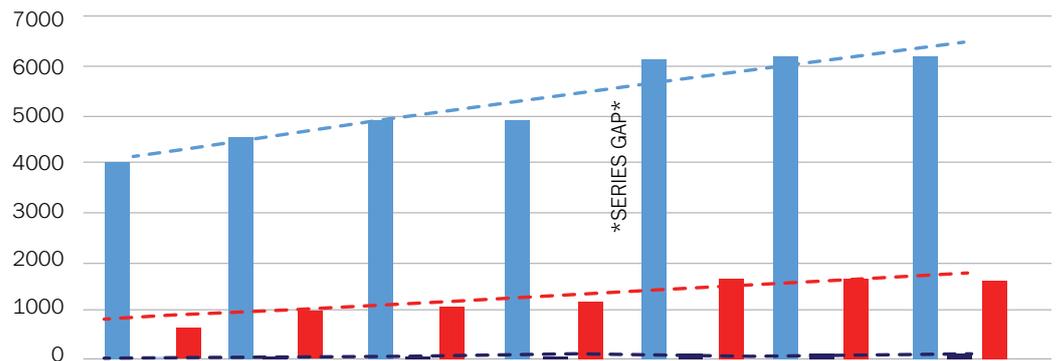
Undergraduate initial teacher education 6-year completion number trends



	Initial teacher education 2005 cohort UG	Initial teacher education 2006 cohort UG	Initial teacher education 2007 cohort UG	Initial teacher education 2008 cohort UG	Initial teacher education 2010 cohort UG	Initial teacher education 2011 cohort UG
Completed same program	12,178	11,577	11,740	10,490	10,650	10,538
Still enrolled in same program in 6th year	458	520	616	583	1,178	1,182
Dropped out or enrolled in other program	6,097	6,066	6,422	6,350	7,494	7,137

Figure 15: Completions, drop outs and still enrolled after six years among undergraduate (UG) initial teacher education numbers

Postgraduate initial teacher education 6-year completion number trends



	Initial teacher education 2005 cohort PG	Initial teacher education 2006 cohort PG	Initial teacher education 2007 cohort PG	Initial teacher education 2008 cohort PG	Initial teacher education 2010 cohort PG	Initial teacher education 2011 cohort PG	Initial teacher education 2012 cohort PG
Completed same program	3,990	4,543	4,865	4,889	6,207	6,265	6,200
Still enrolled in same program in 6th year	13	24	35	31	83	87	127
Dropped out or enrolled in other program	636	958	1,078	1,156	1,637	1,645	1,632

Figure 16: Completions, drop outs and still enrolled after six years among postgraduate (PG) initial teacher education numbers



Analysis thus far has shown that completion rates are declining and there are marked increases in the number of students dropping out of both undergraduate and postgraduate courses. It is reasonable to ask: "Are these trends related to the types and modes of study in initial teacher education?"

Six-year **completion rates for the different modes of study show low proportions of completions among those studying part-time and those in external (online) or multi-modal programs.** Table 1 provides detail on 2016 completions from the 2012 total intakes.

2016 initial teacher education completions by mode	Undergraduate completions	Total undergraduate commencements	Completions rate (6 year)
Full-time	9,858	16,412	60.0
Part-time	1,126	3,134	35.9
Internal	8,752	14,787	59.2
External	1,222	2,981	41.0
Multi	1,010	1,778	56.8

Table 1: 2016 initial teacher education completions by type and mode of attendance

The proportion of students completing initial teacher education degrees after six years is highest for full time and internal, on-campus, mode; with approximately 60 per cent of commencing students managing to complete their studies in this way. This is relatively **low when compared with national completion rates across all degree programs.** For the full 2010 higher education cohort, 66 per cent of students completed a course after six years (Department of Education and Training, 2018).

ATAR is also related to completion rates, see Table 2. Six-year completion rates show consistent decreases as the ATAR brackets lower. There are low proportions of completions among those with ATARs below 70. An ATAR of 70 represents the median, and the **27.5 per cent of 2016 students who entered undergraduate initial teacher education with an ATAR below 70 are from the bottom 50 per cent** of the ATAR scores (which are ranks of all students within their age cohort). **Approximately one in two of these students complete their course.** Students who enter without an ATAR recorded are equally unlikely to complete their course, whereas more than two out of three students with ATARs above 80 complete their course.

2016 initial teacher education completions by ATAR	Secondary entrant completions	Secondary entrant commencements	Completions rate (6 year)
Students without ATAR	1,774	3,047	0.58
30-50	64	131	0.49
51-60	288	507	0.57
61-70	671	1,197	0.56
71-80	999	1,617	0.62
81-90	882	1,301	0.68
91-100	310	447	0.69

Table 2: 2016 initial teacher education completions by ATAR bracket

Data available in the 2018 AITSL report shows that six-year **completion rates also vary by equity status.** While postgraduate completion rates for these categories are high, between 67 per cent and 80 per cent, undergraduate rates for equity groups are lower than the average for initial teacher education; and particularly low for Indigenous and remote students. See Table 3.



2016 initial teacher education completions by equity status	Undergraduate commencements	Undergraduate completions	Postgraduate commencements	Postgraduate completions	Undergraduate completions rate (6 year)	Postgraduate completion rate (6 year)
NESB	190	88	176	132	46	75
Indigenous	525	195	57	34	37	60
Disability	1023	459	359	236	45	66
Low SES	5105	2448	1210	930	48	77
Medium SES	11988	6200	4067	3200	52	79
High SES	4207	2155	2544	2015	51	76
Metro	14763	7565	6297	4978	51	79
Regional	6240	3088	1546	1139	49	74
Remote	313	161	53	33	51	62

Table 3: Commencements, completions and six-year completion rates for equity groupings – 2016

Are the low and declining completion rates due to repeated failure within units of study in the initial teacher education programs? **Success rates, an indicator of pass rates, show little sign of change over the decade**, see Figure 17. This suggests that initial teacher education students are, on average, passing more than 90 per cent of the courses/units they take. At first pass, this is difficult to reconcile with the low completion rates. However, Figures 15 and 16 suggested that there were increasing numbers of students “dropping out” of programs and others still “hanging on” beyond six years. It is possible that university “at risk” identification systems provide weak students with warning and they withdraw before failing a unit, thus success rates can remain high. It is also possible that students fail, or withdraw, after difficulties in a single unit/course because some courses (e.g. professional experience courses) are professional registration requirements. This might contribute to maintaining high success rates alongside low completion rates.

Success rate for initial teacher education and all higher education 2007 – 2016

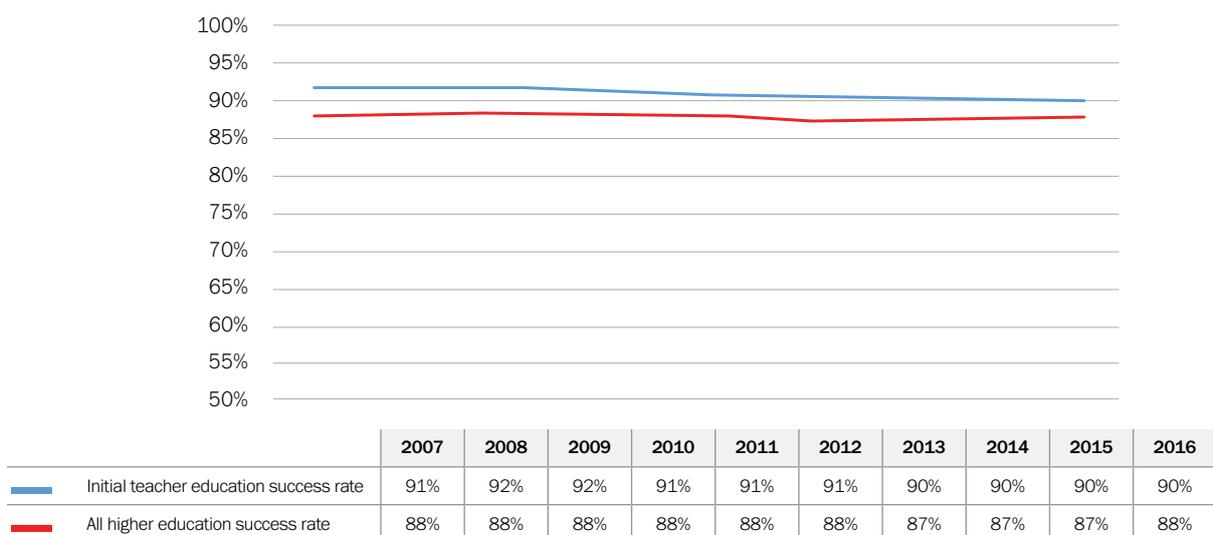


Figure 17: Success rates over time for initial teacher education and all higher education



Despite the high overall success rates for initial teacher education, data shows that among those students for whom ATAR is used as the basis of entry, both success rates (Figure 18) and completion rates (Table 3) are associated with students' ATAR. We can see that **students entering with lower ATARs, and those without their ATAR recorded, show lower levels of success.**

Initial teacher education secondary school entrants' success rates by ATAR

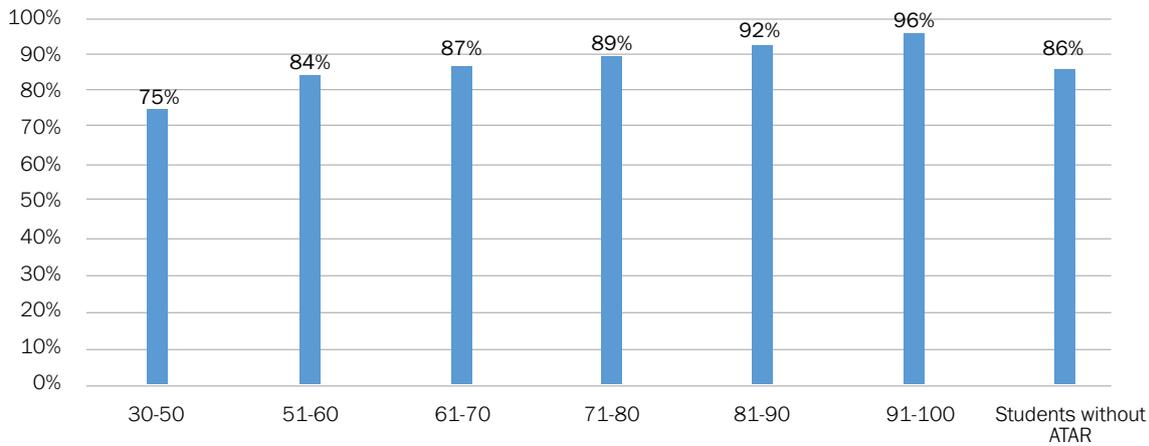


Figure 18: 2016 initial teacher education success rates by ATAR of secondary school entrants

As with completion rates, **success rates vary with the type and mode of program**, see Table 4. Full-time, internal undergraduate and postgraduate initial teacher education students have strong success rates, exceeding those seen across other degree programs. However, part-time and external programs show substantially lower success rates for both undergraduate and postgraduate initial teacher education programs. These figures, and the completion rates, suggest that **recruitment into part-time and external programs is not operating efficiently** – and **substantial proportions of students on these courses are unlikely to pass at least one in every five of their units; and many are unlikely to complete their degree.**

		Undergraduate	Average undergraduate rate (all degrees)	Postgraduate	Average postgraduate rate (all degrees)
Type of attendance	Full-time	90%	89%	95%	94%
	Part-time	77%	89%	88%	94%
Mode of attendance	Internal	90%	89%	96%	94%
	External	82%	89%	90%	94%
	Multi	91%	89%	93%	94%

Table 4: 2016 Success rates by type and mode of initial teacher education



Success rates are also affected by equity status, see Table 5. Undergraduate students with a non-English speaking background, Indigenous, disability or low SES status have slightly lower success rates in initial teacher education than are seen across all degree programs.

	Undergraduate	Average undergraduate rate	Postgraduate	Average postgraduate rate
NESB	87%	89%	94%	94%
Indigenous	79%	89%	89%	94%
Disability	84%	89%	89%	94%
Low SES	87%	89%	92%	94%
Medium SES	89%	89%	94%	94%
High SES	90%	89%	95%	94%
Metro	89%	89%	94%	94%
Regional	88%	89%	93%	94%
Remote	85%	89%	95%	94%

Table 5: 2016 Success rates by equity status



Answering the research questions

The analysis presented here identified three key findings. These are summarised in Table 6 which shows shifts over the decade in relation to: an increasing lack of transparency; declines in the academic standards; and low and decreasing completion rates.

		2006	2016
Increasing lack of transparency	Percentage without ATAR reported – undergraduate + postgraduate all entry basis	79%	93%
	Percentage without ATAR reported – undergraduate on basis of secondary education	29%	31%
Low and declining standards in the limited data available	Below 50th percentile – undergraduate on basis of secondary education (ATAR <70)	18%	27.5%
	Above 50th percentile – undergraduate on basis of secondary education (ATAR = >70)	52%	42%
	Above 30th percentile – undergraduate on basis of secondary education (ATAR = >80) *meeting the international benchmark*	29%	21%
	Percentage of entrants from secondary education below 50th percentile or unknown (with ATAR)	47%	58.5%
Rising numbers but declining completions	Total commencements – all initial teacher education	18,948	29,961
	Percentage 6-year completion rate	64%	51% (2011 cohort – latest data available)

Table 6: Notable decadal trends showing declines in admission academic standards and increasingly poor transparency

These findings are now discussed in relation to the four research questions on academic standards for entry to initial teacher education programs. For brevity and clarity, the answers to these questions are summarised in bullet points, with key points highlighted.

1. What data is available to provide transparency and document trends over time relating to student academic background and preparation for initial teacher education programs in Australia?

- **ATAR provides a single unifying system**, with a composite academic score, for admission to universities across Australia, **little other data is available** to monitor or assure standards in terms of educational preparation for initial teacher education programs. **Alternative measures have not been suggested.**



- The **proportions of intakes monitored via ATAR are declining. ATAR is only reported for 17 per cent of the 2016 initial teacher education intake.** Recent ATAR data is available for more than 65 per cent of the intake to initial teacher education, but in the vast majority of cases it is not reported.
- Maintenance, and growth, in academic standards for entry to initial teacher education and among the education systems require specific metrics. Internationally most systems use a measure that can **provide a percentile position, for each student that indicates their level of ability relative to their school or age cohort.** Australia's use of the ATAR, as a rank measure, complicates monitoring of standards. Although percentiles for ATARs are available, these are not well understood.
- The international benchmark, among nations with high-performing education systems, is that **teachers should be recruited from the top 30 per cent of their age, or school year, cohort.** Currently, the only indicator capable of assessing this is ATAR, although design of a better measure is undoubtedly possible.
- Although **Literacy and Numeracy Tests for Initial Teacher Education (LANTITE) were introduced** in 2016, as a requirement for students to complete before they are able to graduate from initial teacher education, these tests are set to a **standard well below the international benchmark** (top 30 per cent of population, rather than the relevant age cohort), are poorly timed, and have very high pass rates – which have led many to question their usefulness. LANTITEs have done little to assure standards for graduating initial teacher education and are **not positioned to assure standards at entry.**
- Consideration of background curriculum areas is another possibility for monitoring of academic standards. There is some research and data to suggest that **requirements for teachers to complete elementary/intermediate courses in English and mathematics would increase academic standards** overall and produce an improvement in ATAR academic profiles of entrants.

2. What level of assurance is evident in academic standards for admission to initial teacher education in Australia?

- Low levels of reporting on academic standards prevent standards from being assured because **transparency is poor.** The limited data that is available shows **concerning declines in academic standards.**
- The limited data points to low standards, including **growth in the number, and proportion, of students entering initial teacher education with very low ATARs** (= or <50, equivalent to bottom 30 per cent).
- The clear declines in the academic standards among ATARs of entrants to initial teacher education are **consistent with other research** documenting trends in academic standards for teacher intakes (AITSL data, 2019; Wilson & Mack, 2015; Leigh and Ryan, 2008).
- **Growth in initial teacher education numbers has occurred, concurrent to declines in ATARs and an increasing lack of transparency on standards.** The most substantial growth has occurred in external (online) initial teacher education courses and to date there has been no evaluation of the academic standards associated with that mode of delivery. These trends further reduce confidence that academic standards are being maintained.

3. Are the standards stable over time?

- **No,** declines are evident in academic attainment (ATAR) and there are also decreases in completion rates. Low levels of completion are also associated with academic standards, as measured by ATAR.
- The **rate of decline appears to have accelerated in the period 2006 to 2014** reviewed here, with the exception of a recent plateauing over the past two years of available data (2015-17). The changes in the



profile of student ATAR, are highly evident and suggest there is **no stability in standards except for in the recruitment of cohorts from the higher ATAR brackets** (ATAR >80, top 30 per cent) which have remained relatively stable since 2006. This means that the academic profile of intake to initial teacher education is now extremely broad but changes and growth are seen only in those entering from the lower ATAR brackets.

- **Professional esteem**, which is to some extent set by university admission standards, is **likely to be negatively impacted by the growing proportions of students entering with below-average academic standards**. This brings the possibility that students with high ATARs may be deterred from undertaking initial teacher education and thus intakes from this cohort may diminish in the future.

Discourse on standards and ATAR

Despite the mounting evidence, indicating a lack of transparency and declines in the data, some educational authorities have been slow to acknowledge and engage with the issue of academic standards. Much of the discourse over the past decade has focused on dismissing the utility and relevance of ATAR as an indicator of academic standards. The Teacher Education Ministerial Advisory Group claimed:

“Any trends in ATAR cut-offs are difficult to assess. Providers may publish notional cut-offs but then admit large numbers of applicants through such techniques as ‘forced offers’ to individual candidates who do not possess the required ATAR. In this way, providers can publish unrealistic cut-offs that are met by relatively few applicants and compare favourably with the cut-offs published by providers who genuinely report the typical lowest entry score for their initial teacher education programs.” (TEMAG, 2014, p11)

These points are an admission of poor transparency, however this was not highlighted as a problem in the TEMAG report. It is surprising that the group found it difficult to assess trends in ATAR data, as a national review they had the resources to do so.

Despite a lack of interrogation of the available data on entry to initial teacher education, the Teacher Education Ministerial Advisory Group provided recommendations on the suitability and selection of students for initial teacher education, see Figure 16. These echo the need for high and assured standards, within a transparent system.



Recommendations

In the area of suitability and selection, the Advisory Group recommends that

10. Higher education providers select the best candidates into teaching using sophisticated approaches that ensure initial teacher education students possess the required academic skills and personal characteristics to become a successful teacher.
11. Higher education providers publish all information necessary to ensure transparent and justifiable selection processes for entry into initial teacher education programs, including details of Australian Tertiary Admission Rank bonus schemes, forced offers and number of offers below any published cut-off.
12. Higher education providers identify entrants who may need additional support to meet the academic requirements of the program, and provide them with targeted support to ensure all pre-service teachers have the academic skills needed to become effective teachers.
13. Higher education providers use the national literacy and numeracy test to demonstrate that all pre-service teachers are within the top 30 per cent of the population in personal literacy and numeracy.

Figure 19: Teacher Education Ministerial Advisory Group recommendations

The Australian Council of Education Deans suggest that ATARs are not a suitable tool for student selection and point out that many students are admitted without their ATAR recorded. Again, this point illustrates the lack of transparency in the system. The ATAR is a fallible measure, as all educational indicators are; but it is important to remember that the ATAR is not a single measure. ATAR is a composite of students' scores on at least five courses, with school assessment of 12–18 months making up 50 per cent of the scores for the composite, and the remaining balance of 50 per cent based on external exams. Considering this, the ATAR stands as a strong indicator of educational attainment. Furthermore, the ATAR is the only assessment currently available for standard setting and quality assurance on university entry to initial teacher education.

In addition to criticism of ATAR, the Australian Council of Education Deans provide rationale for why low ATARs may be acceptable for admission to initial teacher education:

“Reasons for accepting teacher education students with lower ATARs include:

- *Gaining further experience and qualifications that supersede their ATAR, as their ATAR may have been acquired years before their university entry*
- *Being given special consideration due to personal circumstances (such as the death of a parent) if their low ATAR doesn't reflect prior academic performance*
- *As a member of a disadvantaged group, being granted access to a pathway course during which they would have to prove they're capable of undertaking teacher education.”*

(ACED, 2019, Australian Education Deans Against Big Stick Approach ATAR Entry)



These reasons are weak. In education, all learning and assessment is superseded by further learning and assessment that is not a satisfactory rationale for rejecting the use of ATAR as an entry framework, or indeed monitoring system, for quality assurance at the beginning of entry to a profession. In cases where the ATAR score is dated and more recent information is available, then that additional, valid and reliable information should also be reported for quality assurance and monitoring processes, but currently this does not occur.

The argument that the ATAR does not account for personal circumstances (such as the death of a parent) is also false. The ATAR is the composite of a range of subject scores from the states and territories' respective Higher School Certificate/exit-credential systems. All of these systems provide special consideration for personal circumstances and scores are adjusted accordingly, with thoughtful and sympathetic compensation, prior to the calculation of the ATAR.

Finally, the Australian Council of Education Deans express concern that admission via ATAR is unreasonable for disadvantaged students who need to enter via a "pathway course". Here again there is already provision as the ATAR can, and often is, calculated on the basis of TAFE study. Students who complete the Higher School Certificate via TAFE, take a TAFE "pathway" course, or other TAFE certificate course, are able to demonstrate their attainments through their ATAR. It is also significant to note that during the period in which the declines in ATAR are most evident, the initial teacher education profile of disadvantaged students did not change enough to account for those declines.

A further argument put forward is that initial teacher education degree programs do much to lift academic attainment some incoming students.

"We have shown in many of our courses that we can build those skills throughout the years of training. The focus on the entry level is a bit misguided," said Professor Bartlett, who is vice-chancellor of Federation University. (The Australian, 2019)

That students build academic skills through training is undoubted, but presently there is little data to evaluate it. Learning within initial teacher education and other degree programs in Australia is assessed through internal measures, often without any verification of validity and reliability. Substantial educational research and theory suggest that recouping substantial disadvantage in terms of literacy and numeracy is a difficult and resource-intensive task. In the case of students entering with ATARs below 50, the magnitude of educational progress required to recoup the disadvantage is extremely large and the extremely low completion rates for this group suggest this challenge is not being met.

While efforts are in place to introduce Teacher Performance Assessments (AITSL, 2019b) it will be many years before those assessments are validated, with long-term outcomes that can assure their utility for monitoring teacher standards. As a pre-graduation requirement Teacher Performance Assessments sit appropriately close to the start of teaching careers; but their future presence, and potential for graduate quality assurance, does not negate the need for assurance of academic standards at entry into initial teacher education. Maintenance of standards at entry is required for a professional education system to be efficient and cost effective. It is needed to create a pipeline of students with appropriate capabilities and preparation who are able to build on their learning to capitalise on the professional competencies developed through initial teacher education programs (Neugebauer, 2019). It is clear that high-performing education systems attend to entry requirements, as well as the quality of initial teacher education programs and graduation requirements. To do so effectively they rely on strategic policy for teacher recruitment (Ingvarson, Reid, Buckley, Kleinhenz, Masters & Rowley, 2014).



The concerns over the declining trends in ATAR, and lack of transparency, in initial teacher education admissions are not misguided. AITSL requires initial teacher education programs to apply entry criteria for academic standards and, although criticism of ATAR is rife in some circles, no alternative external and validated measure has been put forward as an alternative. Given the poor transparency and trends highlighted in this report, continued dismissal of the ATAR, which stands as the only available data on academic standards, presents as a serious risk to the profession.

Yet, despite these concerns, there are others who dismiss the issues of teacher standards and the focus on ATAR as “having been beaten up into a frenzy” (Reid, 2019, p1). Such positions are without rebuttal, or even acknowledgement, of the trends so evident in the data available. The only cogent argument put forward by many, including the Teacher Education Ministerial Advisory Group report and Australian Council of Education Deans, is that there are many applicants to initial teacher education who enter on a basis other than ATAR, thus the ATAR is irrelevant to discussion of standards at entry. This line of argument reinforces the view that entry standards are largely unmonitored, with low levels of transparency and means it is impossible to provide assurance that standards are high.

Ingvarson (2016) points out that the dismissal of concerns and ATAR debates are a problem that distract from related issues: 1. teaching has a recruitment problem; 2. governments are not doing enough to ensure teaching is an attractive profession; 3. Australia needs to be willing to pay demonstrably accomplished teachers what they are worth – salaries matter. He notes that:

“A remarkable feature of the ATAR debate is what little consideration some universities give to the effects of their low entry standards on our schools and the teaching profession. The arrogance is breathtaking. The thought that they should consult with, or listen to, the concerns of the teaching profession seems not to arise” (Ingvarson, 2016, Transparency needed in teacher recruitment).

The professional concerns regarding academic standards at entry to initial teacher education and Ingvarson’s related points deserve to be addressed. In the following section some key principles for how this might be done are introduced.



What can be done?

The spiralling dynamics between standards for entry, standards at graduation and student outcomes, outlined in this report, mean that action is imperative. Recent concern over the declining status of the profession, evident in the recent parliamentary inquiry into the status of teaching (Parliament of Australia, 2018) and a very recent national survey of teachers (Heffernan et al, 2019), must be addressed. While some suggest that discussion of initial teacher education ATARs is lowering the esteem of the profession, a more logical position is that the recruitment of low-ability candidates, evident in ATAR data, contributes to the currently low status of teaching.

The Australian Education Council have proposed a National Teacher Workforce Strategy, as part of its commitment to “reviewing teacher workforce needs of the future to attract and retain the best and brightest to the teaching profession and attract teachers to areas of need” (National School Reform Agreement, 2019). This work is in its early stages, and this report provides suggestions for that strategy in relation to standards for entry to initial teacher education and teacher recruitment policy.

Increased monitoring and transparency

The first step in assuring standards is to **lift the levels of reporting and data transparency**. Current [AITSL guidelines](#) for initial teacher education standards acknowledge transparency is important, but the lack of data available for a large number of initial teacher education entrants means that this aspect of their commitment has been neglected. This situation must be remedied, for we cannot have assurance without evidence, and we cannot have evidence without data.

The Australian Higher Education Standards Panel's most recent report noted the recent declines in use and reporting on ATAR as a basis of admission and **suggested that ATAR should be reported for all students for monitoring purposes, even if it is not used for entry**. This seems a very reasonable proposition and would enable much greater transparency on the standards for entry to initial teacher education.

“The Panel referenced the potential for the quality of data on the academic preparation of students to decline over time as the sector continues to shift away from ATAR-based admissions. Data on the ATAR of new students is not collected if they are not enrolled on the basis of that ATAR. In response to this, Innovative Research Universities supports the consistent recording of ATAR for all students that hold a current ATAR, irrespective of the offer made” (Department of Education and Training, 2017, p35).

An alternative, or complement, to ATAR monitoring could be the **use of state and territory assessments, with percentile positioning, on English, Mathematics** and other relevant curriculum areas, from Higher School Certificate/exit-credential assessments.

The Australian Teacher Workforce Data project, managed by AITSL, promises to link up various data sources and provide a **resource that can shed light on the relationships between initial teacher education ATAR data, university course completion, and teacher employment data**. However, there are currently no timelines attached to this project and, no doubt, even when the data becomes available, analysis would take time to follow cohorts through from initial teacher education entrance. Given the international research, it is likely that such an analysis would provide confirmation of the importance of recruiting academically strong students into the profession; and failure to act immediately to stem the entrance of very weak students (at least those below the 50th percentile, with an ATAR of 70) seems an inordinate risk.



Focus on assurance and stability

Focus on working toward assurance and stability should lift professional esteem. Academic standards for entry to professions set benchmarks for professional esteem, they are not just a product of contemporary esteem but contribute to formation of professional pride and respect.

Key principles for assuring standards

The current higher education standards framework includes:

“TEQSA [Tertiary Education Quality and Standards Agency] will need to be satisfied that students who are admitted are equipped to succeed in their chosen course of study (e.g. level of academic preparation, learning skills, proficiency in English) and that ill-prepared students are not knowingly admitted. Factors taken into account in selection (such as prior qualifications or the use of the Australian Tertiary Admission Rank), and all information needed by students before applying for a course must be disclosed transparently” (TEQSA, 2014, p14).

The analysis in this report, particularly the low and decreasing completion rates, suggest that some providers of may not be meeting this requirement. The data make it clear that increasing numbers of students are admitted to initial teacher education with little prospect of completing their degree. Assuring high standards for entry should ensure that ill-prepared students are not admitted and completion rates should rise.

To assure standards four key principles are proposed.

- **Set national academic standard benchmarks** and work toward the international best practice benchmark with a 10-year plan. Benchmarks should be set in relation to percentiles of attainment for the relevant age cohorts of high school or university graduates. Standards might include curriculum requirements for key learning areas.
- Ensure **appropriate data are collected on all students** for monitoring of academic standards across all initial teacher education entrants. This means external assessment data, with verified validity and reliability, with percentile position for candidates. Initial teacher education providers should have discretion to decide if this metric is used for admission, however it must be reported for monitoring purposes for all entrants to initial teacher education.
- **Ensure transparency** so that there can be confidence in the system and, ultimately, the profession. Publishing of aggregated institutional data must cover all entrants.
- **Invest in campaigning** for improved teacher status and **develop a national teacher recruitment policy**.

The final point here relates to **developing a much more strategic approach to recruitment**, this should be done as a priority for the National Teacher Workforce Strategy. Australia is similar to the United States in that “little attention has been paid to altering the value proposition of teaching to draw young people with strong academic backgrounds to the career” (Auguste, Kihn and Miller, 2010, p5).

We must campaign to acknowledge the importance of teachers to society and build recruitment upon the understanding that, now, perhaps more than ever, Australia needs our brightest individuals to build strength in the profession, turn around current educational trends and enjoy the infinite challenges and rewards that come with being a teacher.



References

Akiba, M., Chiu, Y. L., Shimizu, K., & Liang, G. (2012). *Teacher salary and national achievement: A cross-national analysis of 30 countries*. *International Journal of Educational Research*, 53, 171-181.

Alegounarias, T., & Mulheron, M. (2018). *Professional teaching standards in Australia: A case study*. Available at: https://issuu.com/educationinternational/docs/professional_teaching_standards_a_case_study

American Council on Teacher Education (ACTE) (1944). *Teachers for our times, a statement of purposes by the Commission on Teacher Education*. Washington, DC: American Council on Education.

Auguste, B. G., Kihn, P., & Miller, M. (2010). *Closing the talent gap: Attracting and retaining top-third graduates to careers in teaching: An international and market research-based perspective*. Available at: <https://www.mckinsey.com/~media/mckinsey/industries/social%20sector/our%20insights/closing%20the%20teaching%20talent%20gap/closing-the-teaching-talent-gap.ashx>

Australian Curriculum, Assessment and Reporting Authority (ACARA) (2019). *Enrolment rates*. Available at: <https://www.acara.edu.au/reporting/national-report-on-schooling-in-australia/national-report-on-schooling-in-australia-data-portal/enrolment-rates>

Australian Institute for Teaching and School Leadership (AITSL) (2015). *Accreditation of initial teacher education programs in Australia, standards and procedures*. Available at: https://www.aitsl.edu.au/docs/default-source/national-policy-framework/accreditation-of-initial-teacher-education-programs-in-australia.pdf?sfvrsn=e87cff3c_26

Australian Institute for Teaching and School Leadership (AITSL) (2018). *Initial teacher education data report*. Available at: <https://www.aitsl.edu.au/tools-resources/resource/ite-data-report-2018>

Australian Institute for Teacher Standards and Leadership (AITSL) (2019a). *Australian teacher workforce data*. Available at: <https://www.aitsl.edu.au/research/australian-teacher-workforce-data>

Australian Institute for Teacher Standards and Leadership, (AITSL) (2019b). *Teaching performance assessments*. Available at: <https://www.aitsl.edu.au/deliver-ite-programs/teaching-performance-assessment>

Boyd, D. J., Grossman, P. L., Lankford, H., Loeb, S., & Wyckoff, J. (2009). Teacher preparation and student achievement. *Educational Evaluation and Policy Analysis*, 31(4), 416-440.

Carr, S. C., Leggatt-Cook, C., Clarke, M., MacLachlan, M., Papola, T. S., Pais, J., & Normand, C. (2011). *What is the evidence of the impact of increasing salaries on improving the performance of public servants, including teachers, doctors/nurses, and mid-level occupations, in low and middle-income countries: Is it time to give pay a chance?* London, England: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Chadwick, D. (2018). *Providing working memory support to anxious students using cognitive load theory compliant instructions*. (Doctoral dissertation, School of Education, University of Wollongong, Australia). Available at <https://ro.uow.edu.au/theses1/499/>



Chevalier, A., Dolton, P., & McIntosh, S. (2007). Recruiting and retaining teachers in the UK: An analysis of graduate occupation choice from the 1960s to the 1990s. *Economica*, 293(74), 69-96.

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2006). Teacher-student matching and the assessment of teacher effectiveness. *Journal of Human Resources*, 41(4), 778-820.

Department of Education and Training. (2018). *Completion rates of higher education students-cohort analysis, 2005-2017*. Canberra: Australian Government. Available at: https://docs.education.gov.au/system/files/doc/other/key_findings_from_the_completion_rates_of_higher_education_students_-_cohort_analysis_2005-2015_report_0.pdf

Dolton, P., & Marcenaro-Gutierrez, O. D. (2011). If you pay peanuts do you get monkeys? A cross-country analysis of teacher pay and pupil performance. *Economic Policy*, 26(1), 5-55.

Ehrenberg, R. G., & Brewer, D. J. (1994). Do school and teacher characteristics matter? Evidence from High School and Beyond. *Economics of Education Review*, 13(1), 1-17.

Feuer, M. J., Floden, R. E., Chudowsky, N., & Ahn, J. (2013). *Evaluation of Teacher Preparation Programs: Purposes, Methods, and Policy Options*. Washington, DC: National Academy of Education.

Fuller, E. J. (2014). Shaky methods, shaky motives: A critique of the National Council of Teacher Quality's Review of Teacher Preparation Programs. *Journal of Teacher Education*, 65(1), 63-77.

Goldhaber, D. (2007). Everyone's doing it, but what does teacher testing tell us about teacher effectiveness? *Journal of Human Resources*, 42(4), 765-794.

Goss, P., Sonnemann, J., & Nolan, J. (2019). *Attracting high achievers to teaching*. Melbourne, Australia: Grattan Institute.

Hanushek, E. A., Piopiunik, M., & Wiederhold, S. (2019). The value of smarter teachers: International evidence on teacher cognitive skills and student performance. *Journal of Human Resources*, 54(4), 857-899.

Hargreaves, A., Washington, S., & O'Connor, M. T. (2019). Flipping their lids: Teachers' well-being in crisis. In D.M. Netolicky, J. Andrews & C. Paterson (Eds.), *Flip the system Australia: What matters in education* (pp. 93-104). Abingdon, Oxon, England; New York, NY: Routledge.

Ingvarson, L. (2016). Transparency needed in teacher recruitment: The smoke may be clearing in the ATAR battle. *Research Developments*. Available at: <https://rd.acer.edu.au/article/transparency-needed-in-teacher-recruitment-the-smoke-may-be-clearing-in-the>

Ingvarson, L., Reid, K., Buckley, S., Kleinhenz, E., Masters, G. N., & Rowley, G. (2014). *Best practice teacher education programs and Australia's own programs*. Canberra, Australia: Department of Education.

Ingvarson, L., Schwille, J., Tatto, M. T., Rowley, G., Peck, R., & Senk, S. L. (2013). *An analysis of teacher education context, structure, and quality-assurance arrangements in TEDS-M countries: Findings from the IEA Teacher Education and Development Study in Mathematics (TEDS-M)*. Amsterdam, The Netherlands: International



Association for the Evaluation of Educational Achievement.

Jacob, B. A., Kane, T. J., Rockoff, J. E., & Staiger, D. O. (2009). *Can you recognize an effective teacher when you recruit one?* Ann Arbor, MI: Center for Local, State, and Urban Policy, University of Michigan.

Kukla-Acevedo, S. (2009). Do teacher characteristics matter? New results on the effects of teacher preparation on student achievement. *Economics of Education Review*, 28(1), 49-57.

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology*, 105(3), 805-820.

Leigh, A. (2012). Teacher pay and teacher aptitude. *Economics of Education Review*, 31(3), 41-53.

Leigh, A., & Ryan, C. (2008). How and why has teacher quality changed in Australia? *Australian Economic Review*, 41(2), 141-159.

Martin, A. J., Wilson, R., Liem, G. A. D., & Ginns, P. (2013). Academic momentum at university/college: Exploring the roles of prior learning, life experience, and ongoing performance in academic achievement across time. *The Journal of Higher Education*, 84(5), 640-674.

McGrath-Champ, S., Wilson, R., Stacey, M., Fitzgerald, S. (2018). *Understanding work in schools: The foundation for teaching and learning*. Surry Hills, Australia: NSW Teachers Federation.

Meaney, T., & Lange, T. (2012). Knowing mathematics to be a teacher. *Mathematics Teacher Education and Development*, 14(2), 50-69.

Naylor, R., & Sayed, Y. (2014). *Teacher quality: Evidence review*. Canberra, Australia: Office of Development Effectiveness, Department of Foreign Affairs and Trade.

NSW Government. (2013). *Great Teaching, Inspired Learning: A blueprint for action*. Available at: <https://educationstandards.nsw.edu.au/wps/wcm/connect/b3826a4c-7bcf-4ad1-a6c9-d7f24285b5e3/GTIL+A+Blueprint+for+Action.pdf?MOD=AJPERES&CVID=>

OECD. (2005). *Teachers matter: Attracting, developing and retaining effective teachers*. Available at: <https://www.oecd.org/education/school/34990905.pdf>

Parliament of the Commonwealth of Australia, House of Representatives Standing Committee on Employment, Education and Training. (2019). *Status of the teaching profession*. Available at: https://www.aph.gov.au/Parliamentary_Business/Committees/House/Employment_Education_and_Training/TeachingProfession

Ripley, A. (2013). *How to spot a world-class education*. Available at: <https://www.greatschools.org/gk/articles/amanda-ripley-how-to-spot-world-class-education/>

Robinson, N. (2018). *Students with lowest ATAR scores being offered places in teaching degrees: Secret report*. Available at: <https://www.abc.net.au/news/2018-09-18/students-lowest-atar-scores-teaching-degree-offers-secret-report/10200666>



Rockoff, J. E., Jacob, B. A., Kane, T. J., & Staiger, D. O. (2011). Can you recognize an effective teacher when you recruit one? *Education Finance and Policy*, 6(1), 43-74.

Rowan, B., Chiang, F. S., & Miller, R. J. (1997). Using research on employees' performance to study the effects of teachers on students' achievement. *Sociology of Education*, 70(4), 256-284.

Schneider, B. R., Estarellas, P. C., & Bruns, B. (2019). The politics of transforming education in Ecuador: Confrontation and continuity, 2006–17. *Comparative Education Review*, 63(2), 259-80.

Sinyolo, D. (2007). *Teacher supply, recruitment and retention in six Anglophone sub-Saharan African countries: A report on a survey conducted by Education International in The Gambia, Kenya, Lesotho, Tanzania, Uganda and Zambia*. Brussels, Belgium: Education International.

Spreen, C. A., & Fancsali, C. (2005). *What can we learn about improving teaching and learning from comparing policies across countries? A study of student achievement and teacher quality in Southern Africa*. In SACMEQ Conference, Paris, France.

Tatto, M. T., Krajcik, J., & Pippin, J. (2013). *Variations in teacher preparation evaluation systems: International perspectives*. (NSF Project on Evaluation of Teacher Education Programs: Toward a Framework for Innovation). Washington, DC: National Academy of Education.

Teacher Education Ministerial Advisory Group. (2014). *Action now: Classroom ready teachers*. Available at: https://docs.education.gov.au/system/files/doc/other/action_now_classroom_ready_teachers_print.pdf

TEQSA. (2015). *Higher Education Standards Framework (Threshold Standards) 2015: TEQSA contextual overview*. Available at: https://www.teqsa.gov.au/sites/default/files/hesf-2015-teqsa-contextual-overview-v1-1.pdf?acsf_files_redirect

UNESCO. (2004). *Education for all: The quality imperative*. Paris, France: Author.

Vegas, E. (Ed.). (2005). *Incentives to improve teaching: Lessons from Latin America*. Washington, DC: World Bank.

Weldon, P. R. (2015). *The teacher workforce in Australia: Supply, demand and data issues*. Available at: <https://research.acer.edu.au/cgi/viewcontent.cgi?article=1001&context=policyinsights>

Weldon, P. R. (2018). Early career teacher attrition in Australia: Evidence, definition, classification and measurement. *Australian Journal of Education*, 62(1), 61-78.

