



Australian Government
Productivity Commission

Submission to the Quality Initial
Teacher Education Review

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Submission

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The Productivity Commission (the Commission) is pleased to make this submission to the Quality Initial Teacher Education (QITE) Review.

The Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. We provide independent advice and information to governments, and assist in the communication of ideas and analysis.

The core function of the Commission is to conduct public inquiries at the request of the Australian Government on key policy or regulatory issues bearing on Australia's economic performance and community wellbeing. In addition, we undertake a variety of research at the request of the Government and to support its annual reporting, performance monitoring and other responsibilities.

The Commission has previously undertaken a commissioned research study on the *Schools Workforce* (PC 2012), which examined issues in teacher training and professional development, as well as an inquiry into the information and data needed to develop an high-quality education evidence base in Australia (PC 2016). A number of conclusions and recommendations related to education outcomes and broader training issues in the *Shifting the Dial: 5 Year Productivity Review* (PC 2017a, 2017b) may also be of relevance, as well as research on the impact of the demand-driven university system (PC 2019). The Commission has also recently completed a review into the National Agreement on Skills and Workforce Development (PC 2020). While this related to the Vocational Education and Training (VET) system, some of its findings (for example, into support for apprentices and the use of screening for entry into courses) deal with issues that are also present for trainee teachers. Although the above reports may be relevant to the QITE Review, they will not reflect developments in regulatory regimes and markets since their publication.

Apart from the Commission's research and inquiry analysis relevant to the QITE Review, we also produce regular statistics on school education as part of our reports on government services, which may help provide some contextual evidence.¹

This submission briefly addresses a number of the matters in the Review's terms of reference below, drawing from this previous work, but is not a comprehensive or detailed analysis of

¹ See www.pc.gov.au/research/ongoing/report-on-government-services/2021/child-care-education-and-training/school-education.

all aspects of the initial teacher education (ITE) system. The first section of the submission explores issues with attracting high-quality ITE candidates to teaching, including related issues with teacher shortages in specific areas. The second section explores some research on teacher training and the importance of ongoing professional development.

Attracting and selecting high-quality teachers

A strong school system is fundamental to Australia's future, but there are signs that student achievement at Australian schools has stagnated (or even dropped) over recent years, even as students in other high-performing countries (like Singapore) have continued to excel (PC 2017a, p. 89). This is despite increasing resourcing of the school system, which has seen the ratio of full-time equivalent students to full-time equivalent teachers fall from 14.1 to 13.5 from 2006 to 2020 (ABS 2021, table 53a).²

Given the persuasive evidence that teacher quality is one of the few consistent predictors of good student outcomes, attracting and selecting the best students to become teachers in Australia's schools would assist with reversing some of this trend. However, as desirable as it is to improve the quality of the flow of new teachers into the system, it will take many years for this effect to become apparent among the large stock of existing teachers (close to 340 000 in 2020; ABS 2021, table 50a), especially as it takes some time for a new teacher to acquire full proficiency. Although the QITE Review cannot realistically consider all of the elements that are important to a high-functioning school system, there may be lessons from ITE initiatives that are also relevant to the existing stock of teachers. The greater the degree of complementarity in raising the human capital of new and existing teachers, the more rapid the diffusion of excellence in the teaching profession will be.

Student teacher aptitude and 'failing fast'

An important first step is ensuring that ITE students have an aptitude to both complete their ITE studies and to succeed as a teacher. There is evidence that the aptitude of ITE students has been falling in recent years. As the QITE Review discussion paper (p. 10) noted, six-year completion rates for an ITE bachelor's degree have decreased faster than for other fields since 2005. This raises the issue of appropriate screening approaches for budding ITE students.

On the one hand, there are high costs of someone entering higher education as an ITE student if a teacher qualification is ill-suited to them. This can lead to four potential failings — they withdraw during their studies, fail courses, do not get a job in an occupation that uses their skills, or they get such a job, but are not proficient at it. None of these are desirable outcomes — they waste resources, create student debts and fiscal costs for the Australian Government,

² The Commission is currently undertaking analysis of productivity in Australia's school system, though the results may not be available prior to the completion of the QITE Review.

and at their worst, could lead to someone notionally qualified as a teacher, but without the full skill set or sufficient interest in their career.

On the other, screening is an inexact science. The Commission, for example, found the Australian Tertiary Admission Rank (ATAR) — is an imprecise indicator of subsequent attrition and completion rates in higher education (PC 2017b, pp. 21–22). As such, it is difficult for governments or higher education providers to accurately determine a student’s aptitude prior to commencing their course, which was part of the rationale underpinning the demand-driven university system from 2010 to 2017 (PC 2019, p. 47).

If screening is regarded as ineffective, one implication is that some very good potential teachers are not permitted to commence a course. This could be particularly problematic if screening closes off options for inherently very capable people from diverse cultural backgrounds.

Equally, a simple measure, like ATAR, may identify people with strong academic capabilities, but weak interpersonal skills. The need for ITE students to have high-level academic skills may also partly depend on the level of schooling they teach. Although university-level knowledge in specific course content may be highly beneficial for senior secondary schooling, primary school teaching may need a greater emphasis on strong interpersonal skills or other non-academic attributes that are more beneficial to younger students.

There are, accordingly, significant potential gains from developing high quality screening tools. Given the previous analysis of the Commission, a sensible approach should probably entail a cascading set of filters — from initial screens for suitability for undertaking ITE, to high levels of early scrutiny of performance and stringent tests of competence at course completion.

Currently, ITE students are required to meet minimum entry-level literacy and numeracy requirements. The Commission has previously supported the use of these requirements, to the extent that they ‘raise the bar for entry’ into ITE programs, and therefore improve the quality of teaching (PC 2012, pp. 138–140). However, as the QITE Review discussion paper (pp. 8–9) noted, there is more to teaching quality than an ITE student’s literacy and numeracy skills, including their motivation to teach, interpersonal and communication skills, and resilience.

Previous work by the Commission has supported higher education providers using more sophisticated entry assessments for all prospective students (not just in ITE), including the use of aptitude tests, considering extra-curricular activities, conducting interviews, and assessing motivation to study. For example, the University of Notre Dame’s requirement for a personal statement and interview during application may be one factor that explains its relatively low rate of attrition (PC 2017b, pp. 25–26). And in 2020, the Commission recommended the screening of apprentices, to better match prospective students to courses and to identify any need for support services (PC 2020, p. 346).

As noted in the QITE Review discussion paper (p. 9), ITE programs are required to assess applicants’ non-academic characteristics (including through use of the CASPer test and Teaching Personal Statements). However, the Commission is unsure about the specificity

and sensitivity of these assessment tools. The quality of such screens should be continually improved through ongoing tests of their prediction accuracy. As the discussion paper noted, the longitudinal empirical evidence underpinning the effectiveness of ITE screening tools still remains incomplete.

The ‘fail fast and fail cheap’ dictum also provides an important form of screening for a student who has already commenced their studies. As the Commission noted in its examination of the demand driven higher education system:

An efficient system should also assist those students ... to exit swiftly, mitigating the costs associated with university fees, forgone earnings ... and delayed options to acquire skills through other, more suitable forms of education and training. (PC 2019, p. 47)

In line with this, there are also some pragmatic interventions that governments could consider that would help current ITE students obtain a better understanding of their own aptitude for teaching sooner, rather than later. For one, practicums can play a key role in an ITE student’s decision to commit to or pull out of their studies (Dewhurst et al. 2020, p. 17). And there is some tentative evidence of a higher drop-out rate for ITE students just after their practicum placements (Williamson et al. 2017, p. 40). This suggests that placing students into their first practicum as early as possible in their ITE courses may assist them to better understand their own aptitude for teaching sooner.

While pre-entry assessment of capability and ongoing assurance is key to quality ITE, it is also important to model the consequences of excessively tight requirements, as there will be some trade-off between attracting high quality candidates and filling workforce needs.

Teacher shortages

Disparities between the supply of and demand for some types of teachers can lead to shortages of adequately trained teaching staff in particular areas, as well as an excess of suitably-qualified teachers in other areas.

The QITE Review discussion paper (p. 13) raised reports of a number of longstanding shortages in particular subject areas (such as science, technology, engineering and math (STEM), languages and VET) and geographic areas (regional, rural and remote schools), as well as in disadvantaged schools. Previous work from the Commission in 2012 highlighted many of the same shortages, including for secondary mathematics and science; students with disabilities; urban schools with low-socioeconomic status students; and schools in rural and remote areas and Indigenous communities (PC 2012, pp. 10–11). This suggests that such shortages are enduring and have been resistant to policy intervention.

Teacher shortages can impose considerable costs to students' learning outcomes and teacher job satisfaction. For example, when facing shortages of teachers in particular subjects, some schools may respond by increasing class sizes³ or reducing the number of subjects available, limiting opportunities for students. Other schools may respond to shortages by asking teachers to teach a subject outside of their qualifications or professional experience — 'teaching out-of-field'. The Commission has previously raised concerns about the prevalence and consequences associated with teaching out-of-field (box 1), and recommended in the 2017 *Shifting the Dial: 5 Year Productivity Review* that teaching out-of-field be addressed 'within a tight time-frame' (PC 2017a, p. 91).

Box 1 **Costs and prevalence of teaching out-of-field**

Costs

Teaching out-of-field is generally considered to have a negative influence on students, especially for students from a disadvantage background (McConney et al. 2009; PC 2012, p. 95). Teachers teaching out-of-field can also experience additional stresses, which may be a contributing factor for early career resignations, exacerbating shortages (PC 2012, p. 95).

The costs of out-of-field are likely to be minimised when teachers have a genuine interest in the subject or considerable relevant subject knowledge, which can also be further developed through on-the-job experience or professional development (PC 2012, p. 95).

Prevalence

The 2013 *Staff in Australia's School* survey found 12 per cent of primary and 33 per cent of secondary schools had teachers teaching out-of-field (McKenzie et al. 2014, p. 129). Further:

- more Year 7-10 teachers taught out-of-field than Year 11-12 teachers (26 per cent and 15 per cent, respectively)
- teachers early in their career were more likely to be teaching out of field (37 per cent of teachers with 1-2 years experience, compared to 25 per cent of teachers with more than 5 years of experience)
- more government schools (13 per cent primary and 39 per cent secondary) filled teacher shortages with teachers teaching out-of-field than Catholic (11 per cent and 36 per cent) or independent schools (9 per cent and 15 per cent) (McKenzie et al. 2014, p. 129).

At the broadest level, the Commission's past work has focused on two primary drivers of teacher shortages — regulatory barriers to increasing the supply of teachers, and a lack of responsive pay incentives, both discussed below. However, a number of additional drivers, such as cultural factors, may also impact teacher shortages. For example, there is evidence of negative views towards the teaching profession in Australian society and media (Shine 2015), which may contribute to a downward spiral in the expectations for prospective

³ In 2012, the Commission found the effect of class size on student outcomes to be ambiguous. Smaller class sizes may benefit early primary school students, students with specific learning difficulties and students from disadvantaged backgrounds, as well as improve teacher quality (through reduced workloads). But reductions in class size are an expensive policy approach and may only deliver minor improvements (at best) to student performance (PC 2012, p. 204).

ITE students and the attraction of the teaching profession. In 2018, only about 45 per cent of Australian teachers considered that their profession was valued in society (OECD 2020 pp. 55–56). While this is higher than the OECD average, it is far lower than countries like Finland, Singapore and South Korea, where teachers are highly valued.

Regulatory barriers

A number of government regulations in the accreditation and hiring of teachers can act as barriers to expanding the supply of teachers, by increasing costs or limiting opportunities for ITE students. Indirectly, these regulatory barriers can also limit the growth of alternative pathways into the teaching profession (such as programs like Teach for Australia), which encourage high-quality working professionals into a teaching career.

One such example is the two-year minimum length requirement (under the Australian Institute for Teaching and School Leadership accreditation standards) for postgraduate entry teacher training courses, which increased from a one-year requirement in 2011. In the 2012 *School Workforce* report, the Commission found that although there are likely to be benefits from additional training (such as increased skill and knowledge), there was little evidence on the magnitude and persistence of these benefits. By comparison, the costs of additional training time for ITE students (through additional tuition fees and forgone earnings) and for government (through course subsidies), are substantial, and potentially large enough to dissuade high-quality students with alternative career options from participating in ITE programs (PC 2012, pp. 147–153).⁴ While the extended length of postgraduate ITE courses may not be the sole driver, the QITE Review discussion paper (pp. 6–7) also noted that completion rates for ITE postgraduate programs began falling shortly after the requirement was introduced, and that this trend was not reflected in other fields.

The Commission also previously highlighted other problematic constraints within entry standards for postgraduate teaching courses, such as ITE program accreditation standards that prevent those with strong subject skills obtained from highly-related degrees or professional experience (particularly in STEM) from enrolling in postgraduate teacher education courses. One example raised in 2012 was the difficulty faced by some engineering graduates and professionals wishing to teach secondary school mathematics, despite strong familiarity with complex mathematical concepts (PC 2012, pp. 105–108).

Similarly, regulations on hiring teachers to fill vacant teacher positions may also exacerbate shortages (PC 2012, p. 122). In particular, some states (such as Queensland or Western Australia) appear to only permit teachers to be employed while they are still completing their teaching qualification if the school can demonstrate that no registered teacher is available to fill the position. By contrast, other states and territories (including Victoria and the ACT)

⁴ In 2012, the Commission recommended that the two-year requirement should be optional, rather than mandatory, and that if the two-year mandatory requirement was maintained, that governments should implement measures to reduce potential teacher shortages (through greater use of employment-based pathways or additional practical experience) (PC 2012, p. 147-153).

tend to permit the use of employment-based programs to fill teacher vacancies, without a requirement to demonstrate that a registered teacher is unavailable, helping to reduce the foregone earnings from ITE study.

Although there is no national model of teacher supply and demand (as the QITE Review discussion paper noted, p. 13), predicting the supply of and demand for teachers is inherently difficult. Many factors can affect the outcome, such as the preferences of prospective ITE students in the higher education system, as well as teacher retirement rates, attrition rates not associated with retirement, re-entry by ex-teachers (an important latent workforce), birth and immigration rates, student-teacher ratios, and demand for some teachers to work in preschools or childcare centres (PC 2012, pp. 93–94). This suggests that highly granular projections of shortages (by discipline, school level and location) are unlikely to be sufficiently reliable to be useful (though less granular models may still have some value).

Pay incentives

For most types of employment, an excess in demand for workers would result in wage increases, encouraging more people to enter the profession and alleviating the initial worker shortage. However, teacher wages in government schools in Australia are not determined by an open market, but are subject to negotiations with State and Territory Governments. While governments may take into account shortages in determining wage rates, many other considerations are also at play, not least budget constraints.⁵ This makes incentives relatively unresponsive to acute or concentrated teacher shortages, allowing those shortages to persist.

One solution is to improve the pay and employment conditions for teaching roles, particularly where suitably-qualified staff are difficult to find.⁶ This includes the use of pay differentials (higher wages) for specific hard-to-staff positions, as well as offering other incentives for teachers accepting work in ‘shortage’ roles, such as relocation allowances, providing teaching aides or other support staff, reduced teaching hours, more generous leave allowances, and the provision of additional professional development opportunities.

The use of these types of pay and employment differentials in Australia has an inconsistent history, with mixed results. In 2012, the Commission found that although *subject-based* pay differentials are rare in Australia, teacher remuneration usually includes *location-based* allowances for work outside major city centres, and some states have periodically offered extra pay for teachers in low-socioeconomic status schools (PC 2012, p. 111). The use of

⁵ Although wages for teachers in the Catholic and independent school sector are freer to move with demand, the Commission has previously found that they ‘usually mirror the rates ... applying to government teachers’ (PC 2012, p. 111). In part, this may be because 64 per cent of all teaching staff are employed in government schools (ABS 2021, table 50a), creating a pool of potential replacements that limits the bargaining power of Catholic and independent school teachers, as well as generating a strong anchoring effect for their wages.

⁶ To limit the fiscal cost of improving teacher pay, it may be sensible to only target the specific roles that are hardest to fill. Back of the envelope Commission estimates suggest that in 2016, increasing all school teachers’ income by 10 per cent would cost between \$3.3–\$4.1 billion per year (Commission analysis of 2016 Australian Census data).

pay differentials in Australia has also been limited by strong workplace cultural norms. For example, there have been ongoing concerns that expanding pay differentials would undermine teacher ‘cohesiveness’ and ‘collegiality’, both across subject areas and between new and experienced teachers.

For teacher shortages in specific subject areas, greater use of pay incentives would help to make teacher wages more comparable with salaries elsewhere in the economy (for similarly qualified professionals) encouraging more prospective graduates or working professionals into the teaching profession. For example, the Commission previously found that shortages of STEM teachers may be partly explained by evidence that only 6 per cent of individuals with a teacher education degree reported gross weekly earning above \$1600 in 2006, compared to 19 per cent of those with a degree in natural and physical sciences and 34 per cent with a degree in mathematical science (PC 2012, p. 12). Little appears to have changed since. Data from 2016 showed that just over 9 per cent of workers with an education degree earned more than \$2000 per week, compared to 19 per cent of natural and physical sciences degrees and 25 per cent of IT degrees (Commission analysis of 2016 Australian Census data). There is also some evidence from the US that pay differentials can increase retention rates of secondary school math and science teachers (Beuno and Sass 2018).

However, regional and remote schools still face ongoing difficulties in both attracting and retaining suitable staff, suggesting that existing pay differentials have had limited effectiveness in reducing shortages. This may be partly due to the inadequacy of existing differentials to overcome the loss of amenities from living and working in regional and remote communities (PC 2012, p. 112). Other research also suggests that better preparation for the reality of teaching in rural and remote schools could improve the longevity of regional and remote teachers (Roberts and Downes 2020, p. 4).

More broadly, teacher wages show little opportunity for growth over the course of their careers. Although Australian teachers receive a relatively high starting salary (5th of 37 countries among the OECD), they tend to reach the top of the pay scale quickly, in part because the ratio of salaries at the top of the pay scale compared to starting salaries is relatively low (below the OECD average, ranked 25th of 37 countries) (Commission analysis of OECD 2021; measured in \$US PPP). The Commission has also previously noted that movement through the salary scales is often based on length of service, with limited opportunities for additional pay for excellent performance (PC 2012, p. 111).⁷

Preparing ITE students to be teachers

In most instances, creating high-quality teachers will be as much about the nature of the ITE training itself, as it is about the inherent capabilities of ITE students. For this reason, it is important that the pre-service training and practical experience that ITE students undertake

⁷ Somewhat paradoxically, nearly 70 per cent of lower secondary teachers and 74 per cent of principals in Australia agreed or strongly agreed that they were satisfied with their salaries, which is considerably higher than the average among OECD countries (39 per cent and 47 per cent respectively) (OECD 2020).

during their course is based on the latest evidence of ‘what works best’ (including for whom and in what circumstances), and how teachers can implement that within classrooms.

Previous work by the Commission has identified significant gaps in this education evidence base, particularly on the impact of policies, programs and education practices in Australian schools, and the most effective implementation strategies for turning ‘best practice’ into ‘common practice’ (PC 2016, p. 113). As part of this work, the Commission established principles for developing a national education evidence base to inform policy development and improve education outcomes in school education. It also recommended that the Australia, State and Territory governments should ‘pursue a national policy effort to develop a high-quality and relevant Australian evidence base about what works best’ (PC 2016, p. 228). Further development of this national evidence base (including by commissioning high-quality education research) could better prepare ITE students to be teachers, through establishing the teaching practices that work best for different cohorts of students and educating ITE students on how to apply them.

Research also suggests that there are some specific practices that can lead to improvements in the quality of ITE training. For instance:

- improving the practical element of ITE training to reduce the ‘knowledge/doing gap’, such as extending the length of practicum experience, providing practicum experience earlier in their training (discussed above), and a greater use of internships (or extended and less supervised placements at the end of ITE training) (PC 2012, p. 133)
- developing stronger university-school partnerships (PC 2012, p. 28) to increase opportunities for ITE student engagement and time spent in schools (Yeigh and Lynch 2017, p. 115)⁸
- improving the quality and consistency of the induction and mentoring processes that early career teachers receive (PC 2012, p. 133)
- use of virtual reality-based programs to prepare ITE students for practicums or as an alternative to attending practicum in person, as trialled on a small scale during the COVID-19 pandemic (Sasaki et al. 2020).

The Commission’s research in the *Shifting the Dial: 5 Year Productivity Review* also highlighted the opportunities and advantages of exploiting massive open online courses (MOOCs) as a low-cost approach to diffusing high quality training material to large audiences (PC 2017a, p. 97). MOOCs can cost-effectively provide access to the most recent research, practical advice and best educators globally, while being convenient for learners. Greater uptake within ITE courses would not displace some of the essential features of teacher training, but could be integrated into teacher training programs. They could also readily be used as a feature of teacher professional development (Misra 2018).

⁸ In 2012, the Commission found that it may not be possible to expand practicum placements for students, as many universities are already struggling to source placements for all of their student teachers. This issue is likely to have been exacerbated since then by the demand-driven funding model for higher education (PC 2012, p. 133), as well as the physical closing of schools due to the COVID-19 pandemic.

The importance of continuing teacher education

Preparing ITE students to be high-quality teachers does not end with their pre-service training. Meta-analysis suggests robust beneficial effects of ongoing professional development on the quality of teaching (Fletcher-Wood and Zuccollo 2020).

While some forms of knowledge and skills improve through experience, others may decline over time, or become outdated as learning content, expectations and pedagogies develop. As a result, teachers will also need to update their knowledge and skills over their working life, making *continuing* teacher education via ongoing professional development arguably just as important as *initial* teacher education. As noted earlier, the two are complementary.

Ongoing professional development includes both formal and unstructured professional development, delivered in-school or offsite, by external providers — such as private operators, professional associations and system administrators — or internally. Such professional development could be informed by innovations in the delivery and content of courses for new students. Equally, mentoring of new teachers may have broader application, and indeed, developments such as certification of Highly Accomplished and Lead Teachers, are intended to diffuse best practice and skills among the whole school community and not just to new teachers.

In 2012, the Commission found that the effectiveness of professional development for teachers could be improved through:

- better matching training content to the development needs of teachers, such as by using teachers' performance appraisals to outline and then action their development needs
- improving the delivery of professional development so that it is more likely to lead to gains in teacher knowledge and practice (PC 2012, pp. 157–158).

Stronger links between professional development and teacher performance appraisal could also be achieved if principals had additional autonomy over their teachers' performance appraisals. As well as improving professional development quality, additional autonomy for principals would also allow better management of underperforming teachers, helping to improve broader teacher quality. However, this may need to be paired with changes to underperformance procedures in education departments, to assist schools with managing underperforming teachers (PC 2012, pp. 179–181).

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