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# Best Practice Teacher Education Programs and Australia's Own Programs

Lawrence Ingvarson

ACER, Lawrence.Ingvarson@acer.edu.au

Kate Reid

ACER, kate.reid@acer.edu.au

Sarah Buckley

ACER, sarah.buckley@acer.edu.au

Elizabeth Kleinhenz

ACER, Elizabeth.Kleinhenz@acer.edu.au

Geoff N. Masters

ACER, Geoff.Masters@acer.edu.au

*See next page for additional authors*

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**Authors**

Lawrence Ingvarson, Kate Reid, Sarah Buckley, Elizabeth Kleinhenz, Geoff N. Masters, and Glenn Rowley

# ***Best Practice Teacher Education Programs and Australia's Own Programs***

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Submitted to  
Teacher Education Ministerial Advisory Group

Lawrence Ingvarson,  
Kate Reid,  
Sarah Buckley,  
Elizabeth Kleinhenz,  
Geoff Masters, and  
Glenn Rowley

September 1 2014



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Project Team

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## ABBREVIATIONS AND ACRONYMS

|        |  |
|--------|--|
| ACER   | Australian Council for Educational Research                                |
| AITSL  | Australian Institute for Teaching and School Leadership                    |
| APST   | Australian Professional Standards for Teachers                             |
| ATAR   | Australian Tertiary Admission Rank   |
| ATRA   | Australasian Teacher Regulatory Authorities                                |
| BERA   | British Educational Research Association                                   |
| BLM    | Bachelor of Learning Management  |
| CAEP   | Council for Accreditation of Educator Preparation (USA)                    |
| CIEB   | Centre on International Education Benchmarking                             |
| CQU    | Central Queensland University  |
| DEECD  | Department of Education and Early Childhood Development, Victoria          |
| DEST   | Department of Education, Science and Training, Australian Government       |
| DOE    | Department of Education, Australian Government                             |
| ECTS   | European Credit Transfer and Accumulation System                           |
| edTPA  | Educational Teacher Performance Assessment                                 |
| ETDS   | Exceptional Teachers for Disadvantaged Schools                             |
| GCA    | Graduate Careers Australia   |
| IFAC   | International Federation of Accountants                                    |
| InTASC | Interstate Teacher Assessment and Support Consortium (USA)                 |
| ITE    | Initial teacher education  |
| ITT    | Initial Teacher Training, England  |
| KMK    | Standing Conference of the (State) Ministers and Cultural Affairs, Germany |
| MEST   | Ministry of Education, Science and Technology, South Korea                 |
| MOE    | Ministry of Education, Singapore   |
| NCATE  | National Council for Accreditation of Teacher Education                    |
| NIE    | National Institute of Education, Singapore                                 |
| NTIP   | New Teacher Induction Program  |
| NTWD   | National Teaching Workforce Dataset  |
| OECD   | Organisation for Economic Co-operation and Development                     |
| Ofsted | Office for Standards in Education, Children's Services and Skills, England |
| PACT   | Performance Assessment for California Teachers                             |
| PGCE   | Postgraduate Certificate of Education                                      |
| PISA   | Programme for International Student Assessment                             |

|        |  |
|--------|--|
| ACER   | Australian Council for Educational Research              |
| QCT    | Queensland College of Teachers                           |
| QTS    | Qualified Teacher Status, England                        |
| QUT    | Queensland University of Technology                      |
| SCALE  | Stanford Center for Assessment, Learning and Equity      |
| SCSEEC | Standing Council on School Education and Early Childhood |
| SCTE   | School Centres for Teaching Excellence                   |
| SiAS   | Staff in Australia's Schools                             |
| TALIS  | Teacher and Learning International Survey                |
| TEDS-M | Teacher Education and Development Study in Mathematics   |
| TEMAG  | Teacher Education Ministerial Advisory Group             |
| TFA    | Teach for Australia Pathway                              |
| TIMSS  | Trends in International Mathematics and Science Study    |
| VIT    | Victorian Institute of Teaching                          |

## EXECUTIVE SUMMARY

This report was prepared by ACER to support the work of the Teacher Education Ministerial Advisory Group (TEMAG). ACER was requested to undertake evidence-based research and benchmarking of world's best practice teacher education programs against Australia's own programs, which included:

- A. identifying best practice principles for the design, delivery and assessment of teacher education programs; and
- B. articulating the features of teacher education programs that most effectively support successful transition to effective practice.

### A. Best practice principles for teacher education programs

Our review of recent research indicated that a consensus is emerging around the principles that guide the design, delivery and assessment of effective teacher education programs. This consensus is grounded in research that is providing a clearer understanding of the knowledge, skills, beliefs and attributes that programs should enable future teachers to learn, particularly regarding teaching in content in areas such as reading, mathematics, and science. Well-written teaching standards synthesise this research into a vision of effective learning and clearer expectations for what beginning teachers should know and be able to do. They are also giving greater coherence to program design, delivery and assessment.

Several recent reports have synthesised best practice and research on the characteristics of programs that enable graduate teachers to meet these challenging standards (National Research Council, 2010; Council for the Accreditation of Educator Preparation, 2013; Feuer, Floden, Chudowsky & Ahn, 2013). Darling-Hammond (2005a, 2005b) provides the following synthesis of best practice principles for teacher education programs. Well-designed programs have:

1. *Coherence*, based on a common, clear vision of good teaching grounded in an understanding of learning, permeates all coursework and clinical experiences;
2. A *strong core curriculum*, taught in the context of practice, grounded in knowledge of child and adolescent development, learning in social and cultural contexts, curriculum, assessment and subject-matter pedagogy;
3. *Extensive, connected clinical experiences* that are carefully developed to support the ideas and practices presented in simultaneous, closely interwoven course work;
4. *Well-defined standards of professional knowledge and practice* are used to guide and evaluate course work and clinical work;
5. *Explicit strategies* that help students (1) confront their own deep-seated beliefs and assumptions about learning and students and (2) learn about the experiences of people different from themselves;
6. An *inquiry approach that connects theory and practice*, including regular use of case methods, analyses of teaching, and learning, and teacher research applying learning to real problems of practice and developing teachers as reflective practitioners;
7. *Strong school-university partnerships* that develop common knowledge and shared beliefs among school-and university-based faculty, allowing candidates to learn to teach in professional communities modelling state-of-the-art practice for diverse learners and collegial learning for adults; and
8. *Assessment based on professional standards* that evaluates teaching through demonstration of critical skills and abilities using performance assessments and portfolios that support the development of 'adaptive expertise' (Darling-Hammond, 2006a, p. 276).

## **B. Features of teacher education programs that most effectively support successful transition to effective practice**

According to the international literature, best practice transition and induction programs:

1. are guided by professional standards
2. involve mentoring where mentors are carefully selected for their expertise and receive ongoing training;
3. include classroom-based learning opportunities for new teachers;
4. provide continuing professional development;
5. are supported through the provision of resources.

As teaching develops a more complex knowledge base and more challenging goals for student learning, it is increasingly important that the transition into teaching be a carefully staged process, as with internships in most professions. Effective transition from graduation to registration requires opportunities to work 'shoulder to shoulder' regularly with experienced teachers.

It also requires opportunities to engage in standards-guided professional learning around aspects of teaching that can only be learned effectively when new teachers begin to work in schools, , for example, classroom management and reporting. Induction and provisional registration programs are more likely to assure the quality entrants to the teaching profession if full registration is based on a rigorous standards-based assessment of performance linked to a significant increase in salary.

These best practice principles provided a sound basis on which to benchmark Australian teacher education programs.

### **Benchmarking Australian teacher education**

As the quality of professional preparation programs depends to a significant extent on the wider social, policy and regulatory context within which they operate, benchmarking was approached at two levels:

1. at the program level, using the Australian Program Standards as laid out in the *Accreditation of initial teacher education programs in Australia: Standards and procedures* (AITSL, 2011a); and
2. at the system level, based on arrangements for assuring the quality of teacher education programs.

In comparing best-practice teacher education programs across countries, it was important to also compare the broader policy contexts within which they operate. Best practice at the program level is dependent on a range of policies at the national or jurisdictional level: for example, policies concerning recruitment, selection, providers, accreditation, school experience, graduation standards, induction and standards for registration and entry to the profession.

#### **1. Benchmarking Australia's teacher education programs against world's best practice design principles**

As reliable and representative data about current practices and outcomes in Australian teacher education do not yet exist, it is difficult to benchmark Australian practices accurately against those in other countries. However, the *Accreditation of initial teacher education programs in Australia: Standards and procedures* (AITSL, 2011a), provides a basis on which to compare standards for Australian teacher education programs with the principles for best practice. This document sets out:

- a) Seven Graduate Teacher Standards: the knowledge, skills and attributes expected of graduates of nationally accredited programs; and
- b) Seven Australian Program Standards: the key features expected of high-quality initial teacher education programs.

Our assumption, for the purposes of international benchmarking, is that if a program has gained accreditation, it has these characteristics and meets these standards. Although this approach to benchmarking has clear weaknesses, relying as it does on the content of the Australian Program Standards, rather than evidence of implementation and outcomes, it does indicate that the fundamental dimensions of effective teacher education programs are reflected in the Australian Program Standards.

Our review indicates that the seven Australian Program Standards (APS) and the best practice principles for the design, delivery and assessment of teacher education programs have much in common. There are clear indications that Australia is moving toward a standards-guided teacher education system where standards of professional knowledge and practice are used to guide and evaluate course work and clinical work (AITSL, 2014).

There are studies of individual programs giving clear indications that several Australian programs are implementing the best practice principles for the design, delivery and assessment of teacher education programs. There may be more, but evidence to judge the extent to which best practice is common practice is not available. The *Longitudinal Teacher Education Workforce Study* (LTEWS) was recently completed, but the report has yet to be published. It aimed to provide a comprehensive mapping of teacher education programs in Australia. The *Studying the Effectiveness of Teacher Education*<sup>1</sup> (SETE) project is currently investigating the effectiveness of teacher education in preparing graduates for the variety of school settings, with its main findings yet to come.

Based on available data, our review indicates how little we know about the outcomes of individual teacher education programs in Australia, not only with respect to each other, but internationally. Australia's teacher education system currently lacks the capacity and the measures to monitor its own performance and, therefore, to promote improvement. There is little evidence that the current accreditation system is having an impact on the quality of teacher education or graduate outcomes.

Ideally, benchmarking focuses mainly on valid outcome measures. It thereby encourages innovation, diversity and experimentation in teacher education, not standardisation. Well-written standards for graduating teachers set out what beginning teachers should know and be able to do, no matter what the program, or where they are going to teach. They do not prescribe how teacher educators should design their programs or units of study within those courses. There are many ways to prepare teachers so that they meet entry standards for the profession. However, it should be non-negotiable that providers can demonstrate that their approach enables graduates to meet those standards.

Given the importance of high-quality teacher education for Australia's education system and its aspirations to re-join the high-achieving countries, research is needed to build a sounder basis on which to benchmark program outcomes nationally and internationally. High-achieving countries such as Singapore have been rigorously benchmarking their teacher education programs internationally for many years.

Like Singapore, Australia might profit from a major project that would bring teacher educators, professional associations and accomplished teachers together to build a *national curriculum for teacher education*, based on a clear vision of quality learning and teaching of the curriculum and rigorous benchmarking of programs against international best practice.

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<sup>1</sup> More information is available at: [http://www.setearc.com.au/wp-content/uploads/2013/08/Research\\_brief\\_June2013\\_FINAL2\\_March20141.pdf](http://www.setearc.com.au/wp-content/uploads/2013/08/Research_brief_June2013_FINAL2_March20141.pdf)

## **2. Benchmarking Australia's teacher education systems against systems in high performing countries**

High-achieving countries have stable and effective policies and mechanisms in place to assure the quality of initial teacher education entrants, programs and program graduates. These policies and mechanisms determine who gains entry to teacher education, which providers are allowed to train them and who gains full entry to the profession. These policies concern:

### **A. Recruitment for entry to teacher education:**

*High-achieving countries have stable policies in place to assure the quality of entrants to teacher education, such as:*

- i. Making teaching an attractive career option for high academic achievers
- ii. Matching supply and demand
- iii. Setting high standards for admission to teacher education programs

### **B. Accreditation of teacher education institutions:**

*High-achieving countries have regulated teacher education systems and rigorous procedures for the accreditation of teacher education programs*

### **C. Transition and entry to the teaching profession:**

*High-achieving countries require and support a period of mentored induction coupled with rigorous assessments of readiness for full entry to the profession.*

Each of these policies will be discussed in turn.

#### **A. Recruitment for entry to teacher education:**

- i. *Making teaching an attractive career option for high academic achievers*

Our benchmarking exercise indicates that Australia's teacher education policies are currently falling well short of high-achieving countries in terms of ensuring that future teachers are recruited from the top 30% of the age cohort. For the past three years, instead of 100%, less than 50% of Year 12 students receiving offers for places in undergraduate teacher education courses had ATAR scores above 70. Initial teacher education programs have the highest percentage of students entering with low ATAR scores, that is, below 50 and between 50 and 60 (Lloyd, 2013).

At present, Australia has more of a recruitment problem than a selection problem. Tougher selection alone will not ensure that many more of our brightest graduates will see teaching as an attractive, high status career option and increase demand for places. Surveys of secondary school students indicate that long-term salary prospects and status are the main reasons why abler students are not choosing teaching, even though they regard it as an important profession.

Australia is unlikely to match the quality of teacher education graduates in high-achieving countries unless concerted policies are in place to enable teaching to compete with other professions in salary and career development terms and to attract a much higher proportion of entrants from the top portion of the age cohort.

- ii. *Matching supply and demand*

Periodic reports have been commissioned about the supply of and demand for teachers in Australia; however, there is no independent body or agency at national, state or territory level with responsibility for gathering reliable data on a regular basis about the extent to which the number of entrants into teacher education programs matches the present demand for new teachers or into the future. Whereas there is mandatory collection of data about teacher supply, there is no mandatory collection of data about teacher workforce demand. An important, but underused, source of data

about demand for teacher in fields such as science and mathematics is the number of positions in schools that are not staffed by appropriately qualified teachers currently.

*iii. Setting high standards for admission to teacher education programs*

What kinds of evidence provide a valid and reliable basis for selecting students for entry to teacher education programs? Research from the United States indicates that the academic ability and qualifications of entrants is important in selection for a number of reasons. There is a relationship between scores on verbal ability and scholastic aptitude tests, and eventual teaching effectiveness. Candidates with strong academic qualifications are more likely to be effective teachers, as measured by growth in students' test scores. Deep subject-matter knowledge is a necessary condition for being able to use effective methods for teaching that subject matter (National Research Council, 2010; Feuer et al., 2013). There is no evidence to support the selection of students on the basis of personality characteristics and psychometric tests. Interviews are a notoriously unreliable method for selecting applicants and use of these procedures may be open to legal challenge.

Recent research suggests that valid grounds on which to select applicants include general verbal ability and evidence of capacity to complete a rigorous university program successfully and meet the intellectual demands of effective teaching. In some circumstances, applicants may also have a strong track record of working successfully with young people in a variety of other settings such as youth work, sporting organisations or community groups, which can provide valid supplementary evidence in the selection process.

There is no evidence indicating whether or not setting higher academic standards would reduce the diversity of students entering teacher education programs in Australia. However, there is evidence that programs with high admissions criteria are more likely to attract more academically capable students.

The Australian Program Standards for accreditation of teacher education programs state:

*All entrants to teacher education programs will successfully demonstrate their capacity to engage effectively with a rigorous higher education program and carry out the intellectual demands of teaching itself* (AITSL, 2011a, p. 13).

The most valid indicator of whether applicants can cope with this demand is whether they have been able to cope with the intellectual demands of subjects at the secondary education level related to their future teaching responsibilities.

**B. Benchmarking accreditation: Implementation of the Australian Program Standards**

*High-achieving countries have regulated teacher education systems and more rigorous procedures for the accreditation of teacher education programs*

Our review indicates that teacher education programs are largely complying with the content requirements of the Australian Program Standards as laid out in the *Accreditation of initial teacher education programs in Australia: Standards and procedures* (AITSL, 2011).

What matters, however, is how well these accreditation standards are being applied, *as standards*. In their current form, the *Australian Program Standards* and the *Australian Professional Standards for Teachers* at the Graduate level are not implementable reliably. Both sets of standards need further development to make clear what counts as valid evidence of their implementation and whether the evidence shows the standards have been met. Australia has some way to go before current accreditation procedures are fully standards-based in this sense.

When the current arrangements for the assessment and accreditation of teacher education programs in Australia are compared with the systems in high-achieving countries, and in other professions, there is clearly room for improvement if they are to provide a valid and reliable indicator of program quality.



If the current accreditation procedures are to have an impact on teacher quality, they will need to give main emphasis to outcome measures and less to reviews of course content. A starting point might be a survey of the methods universities currently use to assess whether graduates meet standards and their quality and comparability.

Best practice is more likely to become common practice if Australia establishes a single body responsible for the assessment and accreditation of teacher education programs. Currently, five accreditation bodies are responsible for accrediting programs from only ten providers, reducing capacity for independent assessments and cross-fertilisation of ideas. Large numbers of students are enrolled in programs (usually on-line) provided to several states and territories and some universities have campuses in more than one state. These developments mean that state and territory boundaries no longer necessarily match the scope of provision.

Australia would be better served by a single national independent body for the assessment and accreditation of teacher education programs. Teaching stands out as one of the few professions where state and territory governments, registration boards, and professional associations have yet to come together to establish a single national accreditation agency. Merely achieving national consistency is unlikely to deliver an accreditation system as rigorous as those in high-achieving countries.

Currently, there are nearly 50 teacher education providers and over 400 accredited programs – a high number for a relatively small population. The number of small providers and programs has increased in recent years, and now includes TAFE institutes. It is unlikely that all 400 programs can provide a quality of courses and school experience consistent with the best practice principles listed above.

The large number of small programs places a heavy burden on Australia's accreditation system. Countries such as Finland and Chinese Taipei concentrated teacher education in a smaller number of well-resourced universities some years ago, as part of a long-term strategy to lift the quality of teacher education and the status of teaching. Consideration should be given to the possible benefits of a similar policy for Australia. Consideration might be given to the model in England and Wales where funding has only been available for programs that are attracting students who meet a designated entry standard.

### **C. Benchmarking transition and full entry to the profession**

*High-achieving countries require and support a period of mentored induction coupled with rigorous assessments of readiness for full entry to the profession.*

Entry to the profession is arguably one of the most critical decision points in assuring teacher quality, with long term consequences. In some countries where transition is successful, new teachers have effectively had the experience of becoming part of a school's staff by the time they graduate. Recent research reveals the critical importance of collegial support and the profound benefit that trained mentors can provide.

Although there is evidence that much more attention has been placed on induction and mentoring in Australia in recent years, there is a shortage of reliable data about the current quality of transition and induction in Australian schools; however, several studies indicate that attrition rates for beginning teachers over the first five years are at least as high as 20%.

Judging by induction and registration practices in high-achieving countries, current transition and induction arrangements in Australia are less than optimal. Results from the 2013 cycle of the Teacher and Learning International Survey (TALIS) show that the availability of formal and informal induction activities for teachers new to schools in Australia (as reported by principals) was higher than the international TALIS average but not as high as the rate found in Singapore.

Furthermore, in Australia and in many other participating TALIS countries, there was an observed gap between the reported percentage of availability of programs by principals and the participation rates reported by teachers. The percentage of mentoring programs available for teachers new to schools was higher in Australia than the TALIS average; however, the percentage of Australian principals who reported the availability of a mentoring program targeted for teachers was less than the TALIS average.

A major advance in this area in high-performing countries, as well as in Australia, has been to separate the graduation decision (qualification), which is the responsibility of universities, from the decision to grant full entry to the profession (registration), which is usually in the hands of government agencies or statutory teacher registration authorities.

The transition from graduation to registration then becomes a staged process of further standards-guided professional learning around aspects of teaching that can only be developed effectively when new teachers begin to work in schools, for example, classroom management and reporting to parents. One year of teaching is too short for this process to be effective. Every teacher knows the first year is a steep learning curve and that it takes at least two to three years to find your feet and meet challenging teaching standards. When gaining full entry to the profession is based on a rigorous performance-based national registration system and linked to a significant jump in salary, it will have a major impact on the effectiveness of professional learning during the transition and induction period.

## Summary

The evidence gathered for this review indicates that best practice in Australian teacher education is consistent with best practice internationally. Lack of knowledge about the characteristics of effective teacher education *programs* is not the problem. The challenge is to identify policies and systems that need to be in place to ensure best practice becomes common practice in Australian teacher education programs.

Our benchmarking exercise indicates that deregulation of teacher education providers is not the answer – no high-achieving country is doing this. High-achieving countries are characterised by rigorous quality assurance arrangements at three key stages in the preparation of teachers:

- 1) recruitment and entry standards;
- 2) the accreditation of teacher education programs; and
- 3) transition and full entry to the profession.

Australia's current quality assurance arrangements in teacher education are weak compared with those in high-achieving countries.

Unlike high-achieving countries, Australia does not appear to have policies specifically directed at building the status of teaching and providing professional conditions of work (OECD, 2011). High-achieving countries ensure that teaching can compete with other professions for applicants from the top 30% of the age cohort, or higher, ensuring that all entrants can cope with the increasing intellectual demands of high quality teacher education programs.

High-achieving countries have more rigorous procedures for assessing and accrediting the quality of teacher education programs, based primarily on evidence about the knowledge and skills of graduates and their destinations. Full entry to the profession follows a period of mentored support and valid evidence that registration standards have been met.

These are the **enabling** conditions that need to be in place if Australia is to realise its potential to make best practice in teacher education common practice.

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## CHAPTER 1: INTRODUCTION

This report was prepared by ACER to support the work of the Teacher Education Ministerial Advisory Group (TEMAG) by undertaking evidence-based research and benchmarking of world's best practice teacher education programs against Australia's own programs. This included:

- A. identifying best practice principles for the design, delivery and assessment of teacher education programs; and
- B. articulating the features of teacher education programs that most effectively support successful transition to effective practice.

### **The importance of quality teacher education**

There is now an urgent challenge to promote high quality teaching in every Australian classroom, to ensure that every teacher is doing what the best teachers already do, and to raise the status of teaching as an advanced, knowledge-based profession. Initial teacher education has a central and crucial role to play in addressing this challenge.

The urgency of the challenge is due in part to evidence of declining achievement levels in Australian schools. The period 2000 to 2012 witnessed a significant decline in the national reading and mathematical literacy levels of 15-year-olds as measured by the Organisation for Economic Co-operation and Development's (OECD) Programme for International Student Assessment (PISA). Australia was the only high-performing country to see a significant decrease in performance over this period (Thomson, De Bortoli, & Buckley, 2013). This decline occurred at a time of unprecedented national effort to raise literacy and numeracy levels in Australian schools, including the setting of national goals to improve levels of numeracy, reading, writing and spelling by all state, territory and Commonwealth education ministers in March 1997 and the adoption of the *National Literacy and Numeracy Plan*, which included the development of national benchmarks for each of Years 3, 5 and 7; assessment and national reporting against these benchmarks; and an increased focus on professional development for teachers.

The same period saw significant improvements in student achievement in a number of other countries, including some already high-performing countries such as Korea. The decline in Australia and the simultaneous improvement in Korea saw the gap in average mathematical literacy levels between these two countries widen by the equivalent of about one-and-a-half years of school over this twelve-year period.

At the same time, despite significant efforts on the part of governments and education systems to address educational disadvantage and to achieve more equitable schooling outcomes in Australia, the gaps between Indigenous and non-Indigenous 15-year-olds and between students from lower and higher socioeconomic backgrounds, as measured by PISA, were unchanged between 2000 and 2012 (Thomson, De Bortoli, & Buckley, 2013).

Observations of these kinds have led to new levels of effort to understand what improving education systems are doing to raise average student performance levels and to achieve more equitable outcomes in their schools. Early studies, based on analyses of results from the *Trends in International Mathematics and Science Study* (TIMSS) in the 1990s (Hanushek, 2002; Woessmann, 2000, 2001), found little relationship between overall national government spending on schools and levels of student achievement. Smaller class sizes made possible by increased spending also appeared to be largely uncorrelated with average national performance. On the other hand, these studies identified significant school and classroom effects, leading to the conclusion that some schools and teachers are much more effective than others in promoting student learning and achievement.

This conclusion has been reinforced by more recent international analyses of countries' performances in PISA (e.g. Barber & Mourshed, 2007; Mourshed, Chijioke, & Barber, 2010; OECD, 2013; Schleicher, 2013; Tucker, 2014; Whelan, 2009). These analyses have attempted to identify the policies and practices of high-performing and rapidly improving school systems. A major conclusion of these studies is that high-performing countries place a high priority on recruiting, developing and retaining high quality teachers. High-quality teachers and high-quality teaching are emerging as keys to improved national performance.

Or, as the influential 2007 McKinsey report concluded:

*The quality of an education system cannot exceed the quality of its teachers* (Barber & Mourshed, 2007, p. 16).

Some researchers (e.g. Chetty *et al.*, 2011; Rockoff, 2004; Sanders & Rivers, 1996) have attempted to quantify this teacher effect, expressing teacher effectiveness – as reflected in improved student test scores – in terms of its impact on students' learning. For example, analyses of performances on reading and mathematics tests suggest that teachers have two to three times the impact of any other within-school factor. A very effective mathematics teacher has been estimated to produce at least 40% more learning in a year than a poorly-performing teacher. Some have estimated the cumulative impact of a student being exposed to several years of effective teaching as opposed to several years of ineffective teaching. This impact is particularly significant for students from disadvantaged backgrounds, where the difference between a very effective teacher and a poorly performing teacher is estimated to represent a full year of learning progress.

There is thus a level of urgency in enhancing the quality of teachers and teaching in Australian schools. Improved teaching is increasingly recognised as a key to improved student outcomes, improved national productivity and competitiveness, and greater levels of equity (itself a key to improved national performance).

At the same time, expectations of teachers are increasing. National school curricula are increasingly ambitious about the knowledge, skills and attitudes that students should acquire and therefore what teachers should be expected to teach and achieve. Countries are recognising that the best way to compete in the global economy is to provide all citizens with the quality of education formerly provided only to the elite. Greater emphasis is being placed on a range of higher-order student outcomes, including creativity and innovation and skills in working collaboratively, using new technologies and solving complex problems. Many high-performing countries are now looking beyond basic skills such as reading and numeracy to prioritise '21<sup>st</sup> century' skills of these kinds. The consequence is that expectations of teachers are being raised as nations seek still more professional teaching workforces.

### **Preparing future teachers**

The challenge of enhancing the quality of teachers and teaching in Australian schools has obvious implications for how future teachers are selected and prepared. There is no reason to expect that current processes for selecting and preparing teachers will reverse recent declines in the performances of Australian students or result in a workforce better prepared for the teaching and learning of higher-order skills and attributes of the kind just listed.

In fact, questions are sometimes asked about how well prepared graduating teachers are to teach even basic skills such as reading and traditional school subjects such as science. Teachers of initial teacher education courses sometimes express concerns about the literacy and numeracy levels of students undertaking their courses. Principals and senior teachers express concerns about how well some graduates of teacher education programs have been prepared to teach literacy and numeracy. And teachers themselves often say that they feel inadequately prepared and lack confidence in

aspects of their teaching (e.g. to diagnose student learning needs and to assess and report learning progress).

The relatively large number of teacher education providers in Australia, the great variety of courses on offer, and the absence of any comparable measures of the knowledge and skills of graduates of those courses make the monitoring of quality outcomes difficult. In the absence of good measures of graduate skills and knowledge, evaluations of teacher education programs tend to be based on less adequate evidence relating to intended course content and graduates' perceptions of how well they have been prepared.

And yet, there is now much improved research evidence about what highly effective teaching looks like, and what graduates of initial teacher education programs should know and be able to do. There is also much better evidence about what some countries have done to raise the quality of their teaching workforces and to promote the use of effective teaching approaches in schools.

High-performing countries recognise that quality *teachers* are the key to quality *teaching*. They have pursued deliberate policies to attract the most able people into teaching with salaries and working conditions that enable teaching to compete with other professions. Some have been particularly effective in raising the status of teaching as a career, making entry to initial teacher education highly competitive, and encouraging very able secondary school leavers and university graduates to apply for entry into teaching. Many now draw their teaching workforces from the top 30% (or even 10%) of secondary school leavers, in contrast to Australia, where teachers are drawn largely from the middle third of the graduating secondary school cohort.

High-performing countries also place a high priority on building teachers' capacities to implement highly effective teaching methods. Career pathways promote professional learning by recognising and rewarding teachers who develop their expertise and meet high professional teaching standards. This strategy is based on the belief that improved teaching is achieved by building teachers' professional knowledge and skills – through both pre-service teacher education programs and in-service teacher professional development. This in turn requires an understanding of what highly effective teaching looks like (what outstanding teachers know and do). International research is building a stronger knowledge base about the nature of effective teaching and thus a sounder basis for planning teacher education and professional learning programs, as well as for evaluating and recognising professional competence. This research is highlighting the essential importance of teachers' mastery of the subjects they teach (i.e., content knowledge) and their mastery of effective strategies for teaching that content (i.e., pedagogical content knowledge).

The focus of this report is on identifying and understanding best practice principles for the design, delivery and assessment of teacher education programs, and the features of programs that support successful transitions to effective teaching practice. A general conclusion of our study of international experience is that best practice teacher education programs require best practice systems for selecting, preparing and inducting teachers into the profession. For example, the level of content that teacher education courses are able to address successfully depends on the knowledge and skills of students entering those courses. Our ability to provide high quality in-school professional experiences during training, and effective supervision, depends on the numbers of students undertaking initial teacher education. And the calibre of students choosing to enrol in teacher education courses depends on remuneration levels, career opportunities and working conditions upon registration. For these reasons, best practice principles for teacher education must consider more than the content and organisation of university courses. The successful preparation of a high-quality teaching workforce depends on close attention to, and the alignment of, all elements of a country's teacher preparation *system*.

## Structure of the report

The literature on teacher education research is vast and, given the time available for this review, it was necessary to rely mainly on existing authoritative reviews of that research, based mostly on studies conducted in the USA. The British Educational Research Association recently released an interim report on the role of research in teacher education, which was also useful in preparing this report (BERA, 2014).

The chapters in this report fall into two main groups.

Chapters 2 to 4 review research into the characteristics of effective teacher education *programs*. Chapter 2 draws on other research at the program level to identify best practice principles for the design, delivery and assessment of teacher education programs. Chapters 3 and 4 look more closely at research concerning the practical or school-based component of teacher education programs and the transition to full teaching responsibilities respectively. Chapter 5 uses best practice principles derived from this review as a basis for benchmarking teacher education in Australia.

The focus in Chapters 6 and 7 shifts from the program to the national, or *system* level. Chapter 6 focuses on the characteristics of teacher education *systems* in countries that perform relatively well on international tests of student achievement, principally the OECD's PISA, or which have shown substantial improvement in recent years. The chapter includes five case studies, and highlights the importance of building strong systems for assuring the quality of teacher education entrants, programs and graduates. Chapter 8 benchmarks teacher education in Australia against system level policies and practices in high performing countries.

## CHAPTER 2: DESIGNING TEACHER EDUCATION PROGRAMS

This chapter reviews research on the design of teacher education preparation programs as a whole and identifies a set of best practice principles for the design, delivery and assessment of effective teacher education *programs*. The next two chapters focus more specifically on research into the *practical or school-based component of teacher education programs* and the *transition to full teaching responsibilities* respectively.

The review necessarily focuses mainly on research conducted in the USA. There is a wealth of research into teacher education in Australia. The Australian Teacher Education Association (ATEA), in response to our request, provided an extensive annotated bibliography of research conducted by its members over the past three years including evaluations of individual programs. The bibliography is wide ranging and demonstrates the rich diversity of research being conducted by teacher educators in Australia. It can be found at the ATEA website (<http://www.atea.edu.au/>).

However most of this research has not been prompted by the kinds of questions of primary interest to policy makers. Few studies have addressed the core questions for this review about the relative effectiveness of different approaches to preparing teachers. There is a need for more of this kind of research to be supported by relevant agencies in Australia, as it is rarely possible for teacher educators alone to conduct the kinds of large-scale studies that would enable such comparisons to be made.

### Recent approaches to research on effective modes of teacher education

Recent research into the characteristics of effective teachers, teaching and learning has changed the orientation of research into the preparation of teachers. Earlier research compared current programs whose key characteristics were often poorly defined, and used a wide range of different outcome measures (Wilson & Floden, 2003; Cochran-Smith & Zeichner, 2005). This research proved to be unproductive and inconclusive, except perhaps for the repeated findings indicating the central importance of verbal ability (e.g. Ferguson, 1991), subject-matter knowledge (e.g. Grossman & Schoenfeld, 2005; Monk, 1994), and increasingly what is becoming known as knowledge of subject matter for teaching (e.g. National Research Council, 2005). Unsurprisingly, outcomes were also better if programs were able to attract better qualified entrants (Boyd, Grossman, Lankford, Loeb, and Wyckoff, 2010).

Boyd et al., (2010) noted that:

*...much of the research is limited in scope, focuses on inputs to the preparation process rather than outcomes, uses data that are connected only loosely to the concepts being examined, or employs case-study methodologies from which it is difficult to determine causal relationships or generalise to other populations. As a result, there is still much to learn about effective preparation practices (p. 417).*

Recent studies have begun to rectify this situation by drawing on research about effective learning and teaching to identify the desired outcomes of teacher education. This is leading to more sophisticated standards-based measures for assessing professional knowledge and performance capabilities of graduates from teacher education programs. As a result of greater clarity about desired outcomes, research on teacher education has become more productive in increasing our understanding of the essential features of effective teacher education programs. Three key elements in recent research have been critical in making this possible:

1. Recent research on teaching and learning particular subject matters is building a firmer foundation for what beginning teachers should know and be able to do.
2. There is now a firmer research foundation identifying the pedagogical skills that teachers need in order to provide quality opportunities for students to learn.



3. Research is providing greater understanding of the processes that enable future teachers to learn how to teach and greater clarity about the professional *attributes* teachers need.

These three elements will now be considered in detail.

### ***What beginning teachers should know and be able to do***

Darling-Hammond and Bransford (2005) provide one of the most comprehensive reviews of the knowledge base for teaching and its implications for teacher education curricula and pedagogies. Their report recommends that every preparation program should provide opportunities to master knowledge, skills and dispositions related to:

- *learners* and their development within social contexts;
- *subject matter*, including how pupils learn content-specific knowledge and which subject-specific pedagogies and curricula are appropriate to various educational purposes; and
- *teaching*, including how to create, use, and interpret effective and appropriate instructional, assessment, and management strategies.

Recent research in these areas is building a firmer foundation for what beginning teachers should know and be able to do (e.g. Shulman, 1987; Dwyer, 1994; Reynolds, 1992; National Research Council, 2000, 2005, 2010; British Educational Research Association, 2014), particularly the kind of knowledge that teachers need to have about the subject matter they teach, about how students learn that subject matter and about how to assess student development in learning that subject matter (e.g. Grossman & Schoenfeld, 2005; Hill *et al.*, 2005; Loughran, Berry, & Mulhall, 2012).

Research into effective teaching and learning is therefore building a firmer basis on which to conduct research into teacher education programs. It is enabling that research to address different kinds of questions from those in earlier research. Instead of asking 'What do we know about the impact of current teacher education input characteristics?', it asks questions like 'What characteristics does a teacher education program need to have if it is to produce graduates who can meet standards based on what the research says they need to know and be able to do?' Or, 'What constitutes effective opportunities to learn complex classroom management skills, or skills in leading effective classroom discussion?'

These are the types of questions that led to major improvements in the quality of preparation in professions like medicine nearly one hundred years ago (Darling-Hammond & Bransford, 2005, p.8). Darling-Hammond and Bransford (2005) summarised the difference from earlier research in these terms:

*First, it seeks to inform the curriculum for teacher education by considering how what we know about student learning and teaching should inform what teachers have the opportunity to learn. Second, it considers emerging evidence on teacher learning and teacher education to suggest some of the strategies that may help new teachers learn this material more effectively (p. viii).*

Research into the kind of knowledge that effective teachers have about content they teach and how they can help students learn that content has made this approach possible (Shulman, 1987). Recent research indicates, for example, the importance of a teacher's subject-specific pedagogical knowledge for quality teaching and student progress (e.g. National Research Council, 2005; Baumert *et al.*, 2010; Goulding *et al.*, 2002; Hill *et al.*, 2005; Kelcy, 2011; Kersting *et al.*, 2012).

Kelcy (2011), for example, investigated the effects of a teacher's knowledge of research on teaching and learning to read on students' achievement. Kelcy drew on research and expert judgments of the knowledge that teachers of early reading needed in order to be effective. The results showed that

students' achievement in reading comprehension is significantly associated teachers' knowledge of early reading research.

There are several reviews of such research in most of the specialist fields that form a knowledge base for the teaching profession – in literacy (National Institute of Child Health and Human Development, 2000; AACTE, 2002; National Research Council, 2010); in mathematics (National Research Council, 2005; Sullivan, 2012); in science (Corrigan, Dillon & Gunstone, 2010; Jones & Baker, 2005); in assessment (Masters, 2013) and in other subjects (Richardson, 2001). Major challenges remain however, in developing valid methods for accessing and assessing this knowledge in teachers.

Similar findings characterise successful professional learning programs for practising teachers, such as First Steps programs in literacy and mathematics that are grounded in this research (e.g. Hawley & Valli, 1998) and bring teachers up to date with its findings. It is common to hear participants in such programs comment, 'Why wasn't I informed about this research during my training program?'

### ***The skills that teachers need in order to provide quality opportunities for students to learn***

There is also a firmer research foundation about the skills that teachers need in order to provide quality opportunities for students to learn. There has been a surprising lack of clarity about exactly what core teaching skills graduate teachers should be able to demonstrate. One example of this research is the project, *TeachingWorks* being undertaken by Deborah Ball and Colleagues at the University of Michigan<sup>2</sup>. Based on extensive research, the project team has identified a set of 19 core skills, or 'high-leverage practices' that graduate teachers should be able to perform.

*A 'high-leverage practice' is an action or task central to teaching. 'Carried out skillfully, these practices increase the likelihood that teaching will be effective for students' learning. They are useful across a broad range of subject areas, grade levels, and teaching contexts, and are helpful in using and managing differences among pupils. The list here is a set of 'best bets', warranted by research evidence, wisdom of practice, and logic.'*<sup>3</sup>

Examples of their 19 high-leverage practices include:

1. Making content explicit through explanation, modeling, representations, and examples
2. Leading a whole-class discussion
3. Eliciting and interpreting individual students' thinking
4. Establishing norms and routines for classroom discourse central to the subject-matter domain

Teacher education programs are being built around these skills, providing materials and resources to support practising those skills and methods for assessing their achievement. Research endeavours like that of the *TeachingWorks* team are providing clearer expectations about the skills that future teachers should have the opportunity to master in their teacher education programs. They are clarifying what skills the profession can expect graduates to be able to demonstrate before gaining entry to the profession and also opening doors for common methods to be developed for assessing graduate performance across different programs.

The essential elements in learning new skills such as these have been well known for some time (e.g. Joyce & Showers, 1980), though not always implemented effectively in teacher education programs.

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<sup>2</sup> <http://www.teachingworks.org/work-of-teaching/high-leverage-practices>

<sup>3</sup> <http://www.teachingworks.org/work-of-teaching/high-leverage-practices>

These include a clear theory or rationale behind the skill, models of the skill in practice, opportunities to practice the skill in controlled situations with feedback and then in real-life situations with more coaching and feedback. These are the essential elements that need to be in place if new teaching skills are to be mastered.

Extensive research shows that a teachers' ability to use these skills effectively depends on the depth of their understanding of the subject matter in question (e.g. Brophy, 1991; Grossman & Schoenfeld, 2005; Leinhardt, Putnam, Stein, & Baxter, 1991; Ma, 1999). Without that knowledge, it is more difficult, for example, to initiate and maintain high quality classroom discussion, build on students' ideas or give useful feedback. Many studies have examined the relationship between the knowledge teachers have of the subject matter they are teaching and their teaching practices showing an intimate relationship between subject-matter knowledge and pedagogy. Teachers cannot use 'high leverage' skills without effectively without deep knowledge of the content in question.

Stodolsky (1985), for example, observed primary teachers teaching social studies classes and then mathematics classes and found significant differences in the range of pedagogical methods those teachers were able to draw on for each subject. Whereas most teachers confidently used class discussion and a variety of activities and resources in social studies lessons, including group work, the range was much more limited in mathematics classes where seatwork, textbooks and worksheets predominated. These differences mirrored their level of confidence in the subject matter.

This line of research demonstrated that subject-matter knowledge and pedagogy, as a general rule, should not be treated separately, but as intimately related. How students learn and what teachers need to know and be able to help them learn, depend to a major extent on what they are learning. These studies have important implications for designers of teacher education programs. Methods in the main should be taught in the context of the content to be taught. When a teacher's subject-matter knowledge is limited, his or her capacity to use innovative methods, to capitalise on student ideas, to actively engage students in discussion around important concepts and to provide useful feedback will also be limited.

### ***Greater understanding of the processes that enable future teachers to learn how to teach***

Research is now providing greater understanding of the processes that enable future teachers to learn how to teach and greater clarity about the professional *attributes* teachers need if they are to help every child succeed and to continue to develop their own knowledge and skills, both as individuals and as members of a collective profession (e.g. Korthagen, Loughran, & Russell, 2006; Loughran, 2006). An example of these attributes is the ability to participate effectively as a member of a professional community.

Hammerness and Darling-Hammond (2005) reviewed the research on how teachers learn and develop and used it to develop a framework for standards-based learning in professional communities. Their framework includes: shared educational values; a guiding vision of good practice; deep knowledge of content, pedagogy, students and social contexts; conceptual tools (such as learning theories); a repertoire of teaching practices (such as designing unit plans); and dispositions such as the disposition to reflect and learning from experience.

Effective programs create such frameworks, bringing future teachers together with accomplished teachers in professional communities. Professional communities are characterised by a focus on student learning, collaboration, reflective dialogue and deprivatisation of practice. Effective programs induct future teachers into the life of what it means to be part of a professional community, in contrast to the traditional model of the three-week 'teaching prac' with one student teacher, one supervising teacher and a rare visit from a university staff member. Darling-Hammond & Hammerness (2005) claim that:

*Contemporary research suggests that learning about teaching develops through participation in a community of learners where content is encountered in contexts where it can be applied. Emerging evidence suggests that teachers benefit from participating in the culture of teaching - by working with the materials and tools of teaching practice; examining teaching plans and student learning with immersed in theory about learning, development and subject matter (p. 405).*

This research has led to major changes in the way teacher educators structure their programs, especially the school experience or clinical components, to ensure strong links between theory and practice. Effective programs place future teachers in situations where they become active learners about teaching; situations where they are challenged to learn how to think like a teacher. As Ball and Cohen (1999) put it, they make practice the site for learning. In addition, they ensure prospective teachers not only learn to teach, but also learn how to conduct research on teaching with colleagues that makes a contribution to knowledge in the professional community.

### **Coherence: Teaching standards and the design of effective teacher education programs**

Coherence is emerging as an important feature of effective programs and teaching standards are providing a sounder basis for that coherence. Well-written teaching standards synthesise recent research on teaching and learning and its implications for what programs should ensure graduates have the opportunity to learn. An effective teacher education program, by definition, is a program that ensures its graduates meet standards for what beginning teachers should know and be able to do. The IEA Teacher Education and Development–Mathematics (TEDS-M) study found a strong relationship between program coherence and graduate perceptions of preparedness (Tatto, *et al.*, 2012).

Coherent programs are built around a consistent vision of good teaching, one that pervades course selection and planning. Courses are carefully sequenced and build on each other. They are also built around a guiding theory of teacher development and what it takes to learn how to teach and move from concerns about self to concerns about impact on students, including the ability to analyse and evaluate one's own teaching (Korthagen *et al.*, 2006). Coherence is increasingly being acknowledged to be an important feature of best practice in teacher education programs (Levine, 2005; Darling-Hammond, 2005a).

Darling-Hammond and Hammerness (2005, p. 397) point out that, beginning in the late 1980s, teacher education reforms began to produce more integrated and coherent programs, which emphasised a consistent vision of good teaching embodied in standards for teaching. Academic links between the USA and Australia are strong, and many Australian teacher educators participated in these reforms while in the USA and brought their experience back with them. These developments have been reflected for many years in many Australian teacher education programs.

Past criticism of teacher education programs identified:

- a lack of sequencing and connectedness among units of study within programs
- a failure to link taught knowledge and theory with the pre-service teachers' classroom experiences.

Incoherence tended to arise because decisions about program design and allocations of units of study were made between academics from different disciplines and interests, with insufficient attention to how it all came together to provide an effective preparation for teaching. In some cases, selection of units of study within programs was determined more by the particular interests of current academic staff than the need to ensure adequate opportunities to learn how to implement all teaching standards. A major review of teacher education in the USA (Levine, 2006), pointed to the lack of coherence within teacher education programs and the need for standards 'to counter the

relativism and the “anything goes” mentality that dominate teacher education today, leading to a multiplicity of disjointed and conflicting programs’ (p. 106).

### ***Teaching standards and the knowledge base of teaching***

The knowledge base for teaching is growing and being articulated through the development of more valid research-based teaching standards. Writers of recent teaching standards aim to build stronger bridges between this research and practice. The central purpose of teaching standards is to synthesise findings from current research about successful professional practices and to summarise its implications for what teachers should know and be able to do. Such standards provide a knowledge base for teaching, and thereby strengthen its claims to be recognised as a profession. They also give a more valid basis on which to assess the outcomes of teacher education programs.

The teaching profession, like many professions, is made up of many specialist fields, each with distinct elements of professional knowledge and practice. For example, what an early primary teacher needs to know about learning to read is very different from what a secondary science teacher needs to know about helping students overcome misconceptions in learning physics. What a primary teacher needs to know about child development is different from what a secondary school physical education teacher needs to know about adolescent development.

Generic standards for teaching, such as the recent *Australian Professional Standards for Teachers* (AITSL, 2011b), provide a framework within which to develop these more detailed standards for what beginning teachers need to know and be able to do in each of the specialist fields of teaching. Generic standards such as, ‘Teachers know the subject matter and how to teach it’, and ‘Teachers use a range of teaching methods’, are of limited use to designers of teacher education programs until they are elaborated for each specialist field of teaching. When this is done, they can provide a clearer specification for the assessment of graduates’ knowledge and capabilities. This is just as true for generalist primary teachers as it is for secondary level subject specialists.

Darling-Hammond and Bransford (2005), for example, identify three questions that developers of teaching standards typically aim to address:

- What kinds of *knowledge* do effective teachers need to have about their subject matter and about the learning process and development of their students?
- What *skills* do teachers need in order to provide productive learning experiences for a diverse set of students, to offer informative feedback on students’ ideas, and to critically evaluate their own teaching practices and improve them?
- What professional *commitments* do teachers need to help every child succeed and to continue to develop their own knowledge and skills, both as individuals and as members of a collective profession?

### ***Standards-based teacher education***

A consensus is emerging around the principles that should guide the design, delivery and assessment of effective teacher education programs (Darling-Hammond & Bransford, 2005), grounded in greater confidence about the knowledge, skills, beliefs and attributes that future teachers should have the opportunity to learn (Brophy, 1991; Reynolds, 1992; Shulman, 1987). Well-written teaching standards synthesise this research into a vision of effective teaching (Dwyer, 1994; Council of Chief State School Officers, 2010). This vision is providing a sounder basis for the design, delivery and assessment of programs. The prestigious National Commission on Teaching and America’s Future (NCTAF, 1996), for example, argued that;

*Standards for teaching are the linchpin for transforming current systems of preparation, licensing, certification and on-going development...(they) bring clarity and focus to a set of activities that are currently poorly connected and often badly organised. . . Of*

*greatest priority is reaching agreement on what teachers should know and be able to do to teach to high standards. (p. 67)*

Learning how to develop more valid standards-based methods of assessment has become a priority (Gitomer, 2009; Kennedy, 2010; Shepard, Hammerness, Darling-Hammond, & Rust, 2005; Wei & Pecheone, 2010). There is a major need for more research in this area. Tests commonly used in the past in the USA for licensing purposes, such as multiple-choice tests of basic skills or subject-matter knowledge have limited validity as measures of what matters in teaching effectively. This is virtually uncharted territory in Australia.

These developments are providing a basis for a closer alignment between:

- Standards for what beginning teachers need to know and be able to do;
- The design of teacher education programs;
- The methods used to assess pre-service teachers' knowledge and performance; and
- Criteria used to assess and accredit teacher education programs

These are the principles of a standards-guided teacher education system. Standards provide a vision of high-quality teaching. They are also measures, or 'benchmarks'. They aim to clarify the knowledge, capabilities and values that future teachers should gain from their teacher education programs. Standards thereby give teacher education providers clear direction about the *opportunities to learn* that their programs should provide, without prescribing how they should prepare teachers. They make clear to students what they are expected to show they know and are able to do before they will be eligible to join the teaching profession.

The core components in a standards-based teacher education 'system' include:

1. *Standards* that describe what beginning teachers should know and be able to do as a result of their preparation and thereby guide planning of teacher education programs.
2. A *coherent* program for professional learning wherein each course in the program is justified in terms of how it enables students to meet particular teaching standards - and the courses, collectively, cover all the standards.
3. Progress and graduation from the program based on a sequence of authentic *performance assessments* that together provide reliable evidence that students meet all the standards.
4. *Accreditation* of teacher education programs conducted by an independent professional body and based on valid and reliable evidence that graduates meet standards for certification and full entry to the profession.

Together, these components form a *system* of mutually supporting elements that strengthen teacher education programs. Alone, their effects on teacher education programs will be minimal. Take one away and the capacity of the system to support effective teacher preparation is undermined.

A recent report, *Raising the Bar*, from the American Federation of Teachers (2012) argues that:

*...it is time to finally act on addressing teacher preparation in a sustainable way: through action to accept common professional standards, align preparation to those standards, and enable the profession itself to ensure candidates meet them (p. 4).*

The emphasis on standards-based outcomes opens greater opportunity for innovation and experimentation than traditional approaches to accreditation, which have tended to focus more on reviewing course content, reading lists, assignments, and such.

### ***High quality school experience that builds strong links between theory and practice***

The next chapter provides a review of research into the characteristics of effective practical experience in schools. It identifies the importance of professional experiences that commence early

in teacher education, that are extended, and that are highly integrated with university-based teaching. It also emphasises the importance of accomplished supervising teachers and a common understanding of teaching standards and how to apply them.

### **Best practice principles for the design, delivery and assessment of programs**

Several recent reports have synthesised best practice and research on the characteristics of programs that enable graduate teachers to meet these challenging standards (e.g. Hammerness & Darling-Hammond, 2005; National Research Council, 2010; Council for the Accreditation of Educator Preparation, 2013; Feuer, Floden, Chudowsky & Ahn, 2013). Darling-Hammond (2006a, 2006b), for example, has identified the following common principles for the design and delivery of effective teacher education programs:

1. *Coherence*, based on a common, clear vision of good teaching grounded in an understanding of learning, permeates all coursework and clinical experiences.
2. A *strong core curriculum*, taught in the context of practice, grounded in knowledge of child and adolescent development, learning in social and cultural contexts, curriculum, assessment and subject matter pedagogy.
3. *Extensive, connected clinical experiences* that are carefully developed to support the ideas and practices presented in simultaneous, closely interwoven course work.
4. *Well-defined standards of practice* and performance that are used to guide and evaluate course work and clinical work.
5. *Explicit strategies* that help students to (1) confront their own deep-seated beliefs and assumptions about learning and students, and (2) learn about the experiences of people different from themselves.
6. *An inquiry approach that connects theory and practice*, including regular use of case methods, analyses of teaching and learning, and teacher research applying learning to real problems of practice and developing teachers as reflective practitioners.
7. *Strong school-university partnerships* that develop common knowledge and shared beliefs among school- and university-based faculty and allow candidates to learn to teach in professional communities modelling state-of-the-art practice for diverse learners and collegial learning for adults.
8. *Assessment based on professional standards* that evaluates teaching through demonstration of critical skills and abilities using performance assessments and portfolios that support the development of 'adaptive expertise' (Darling-Hammond, 2006, p. 276).

Darling-Hammond (2006) points out that:

*The critical element in the work of most of these programs was a set of expectations for teacher knowledge and skill that had been integrated into coursework, represented in the standards they used for evaluating clinical practice (for example in student teaching), and codified in criteria for evaluating portfolios and performance assessments of candidates (p. 316-17).*

More sophisticated systems for assessing and accrediting teacher education programs are emerging based on best practice principles such as those identified by Darling-Hammond and others above. These principles also identify aspects of programs on which it is possible to develop standards for "benchmarking" programs.

### **Best practice principles and standards for accrediting teacher education programs**

Writers of standards for accrediting teacher education programs also seek to identify best-practice principles for the design, delivery and assessment of teacher education programs. One of the best

examples of standards for accrediting teacher education programs is that developed by the Council for the Accreditation of Educator Preparation (CAEP) in the USA shown in Table 1.

Table 1 only provides a summary of the CAEP standards. The full set of standards (CAEP, 2013) contains elaborations and a research based rationale for each standard. (An example, based on Standard 2, is provided in Appendix 1.) However, clear parallels are evident between the best-practice principles above and the CAEP accreditation standards. The CAEP program standards emphasise the importance of aspects of professional knowledge and clinical practice, but it is noteworthy that they also assess programs in terms of the quality of candidates they can attract and in terms of the impact their graduates have on student learning.

**TABLE 1: Council for the Accreditation of Educator Preparation (CAEP) Standards**

| Standard   | Definition   |
|--|--|
| 1: CONTENT AND PEDAGOGICAL KNOWLEDGE                     | The provider ensures that candidates develop a deep understanding of the critical concepts and principles of their discipline and, by completion, are able to use discipline-specific practices flexibly to advance the learning of all students toward attainment of college- and career-readiness standards.   |
| 2: CLINICAL PARTNERSHIPS AND PRACTICE                    | The provider ensures that effective partnerships and high-quality clinical practice are central to preparation so that candidates develop the knowledge, skills, and professional dispositions necessary to demonstrate positive impact on all P-12 students' learning and development.  |
| 3: CANDIDATE QUALITY, RECRUITMENT, AND SELECTIVITY       | The provider demonstrates that the quality of candidates is a continuing and purposeful part of its responsibility from recruitment, at admission, through the progression of courses and clinical experiences, and to decisions that completers are prepared to teach effectively and are recommended for certification. The provider demonstrates that development of candidate quality is the goal of educator preparation in all phases of the program. This process is ultimately determined by a program's meeting of Standard 4.  |
| 4: PROGRAM IMPACT  | The provider demonstrates the impact of its completers on P-12 student learning and development, classroom instruction, and schools, and the satisfaction of its completers with the relevance and effectiveness of their preparation.   |
| 5: PROVIDER QUALITY ASSURANCE AND CONTINUOUS IMPROVEMENT | The provider maintains a quality assurance system comprised of valid data from multiple measures, including evidence of candidates' and completers' positive impact on P-12 student learning and development. The provider supports continuous improvement that is sustained and evidence-based, and that evaluates the effectiveness of its completers. The provider uses the results of inquiry and data collection to establish priorities, enhance program elements and capacity, and test innovations to improve completers' impact on P-12 student learning and development. |

### **Best practice in the assessment of teacher education programs**

A feature of standards-based teacher education programs is that graduation and initial registration decisions are based on evidence that students can meet levels of knowledge and performance defined by professional standards, rather than the traditional forms of assessment used in university courses such as written examinations (Wilson & Youngs, 2005). Bodies such as the National Council for Accreditation of Teacher Education (now the *Council for the Accreditation of Educator Preparation*, CAEP) in the USA have been promoting standards-based teacher education and a move to outcomes-based accreditation for many years (Wise, Ehrenberg & Leibbrand, 2008).

Efforts to improve the effectiveness of teacher education programs will be strengthened by sound methods for evaluating the outcomes of those programs. Evaluation calls for agreement about



standards for what graduates should know and be able to do, as well as reliable and valid methods for assessing whether graduates have attained those standards. However, while program evaluation is important for improvement, it is not sufficient in itself to bring about improvements in the quality of entrants and graduates.

The prestigious National Academy of Education (NAE) in the USA recently commissioned a panel of highly regarded educational researchers to prepare a report on the evaluation of teacher education programs (Feuer, Floden, Chodowsky & Ahn, 2013). The authors point out that there is an urgent need to develop defensible measures of teacher education programs. Evaluations of teacher preparation programs (TPPs) serve three basic purposes – holding providers accountable, providing consumer information to prospective TPP students and their potential future employers, and supporting program self-improvement. (p. 4)

The NAE report provides a useful framework for making decisions about setting up a system for the evaluation of teacher education programs, which is worth consideration in the current Australian context. Key questions to be addressed in deciding on the approach to evaluation include:

1. What is the primary purpose of the TPP evaluation system?
2. Which aspects of teacher education matter most?
3. What sources of evidence will provide the most accurate and useful information about the aspects of teacher preparation that are of primary interest?
4. How will measures be analysed and combined to make a judgment about program quality?
5. What are the intended and potentially unintended consequences of the evaluation system for TPPs and education more broadly?
6. How will transparency be achieved? What steps will be taken to help users understand how to interpret the results and use them appropriately?
7. How will the evaluation system be monitored?

In addressing Question 3 above, the NAE report points out that ideally the evidence used to assess teacher education programs would draw on research into the characteristics of teacher education programs that are most important in preparing effective teachers. However, the authors are careful to point out that our knowledge about these characteristics is far from complete.

*Most measures of TPP quality in use today have been chosen based on their face validity – in other words, they appear to address important characteristics of teachers and teaching – and on the feasibility of collecting the data, rather than empirical correlations or “predictive validity” evidence linking qualities of teacher preparation with student outcomes. For this and other reasons the professional measurement and evaluation communities continue to advocate strongly for the use of multiple measures. (p. 26)*

After reviewing the evidence, the NAE authors identify the following list of attributes or standards related to TPP quality and suggest examples of measures that might be used to provide evidence and set benchmarks for each attribute, as shown in Table 2.

**TABLE 2: Attributes Related to TPP Quality and Evidence Used to Measure Them**

| <b>Program Attributes</b>   | <b>Measures</b>  |
|---|--|
| <b>Admissions and recruitment criteria</b>  | <ul style="list-style-type: none"> <li>• Grade-point average (GPA) of incoming class</li> <li>• Average entrance exam scores (e.g., SAT, ACT)</li> <li>• Percentage of minority students in incoming class</li> <li>• Number of candidates in high-need subject areas and specialties</li> </ul>     |
| <b>Quality and substance of instruction</b>   | <ul style="list-style-type: none"> <li>• Course syllabi</li> <li>• Lectures and assignments</li> <li>• Textbooks</li> <li>• Course offerings and required hours</li> <li>• Required content courses</li> </ul>   |
| <b>Quality of student teaching experience</b>   | <ul style="list-style-type: none"> <li>• Fieldwork policies, including required hours</li> <li>• Qualifications of fieldwork mentors</li> <li>• Surveys of candidates</li> <li>• Records from observations of student teaching</li> </ul>  |
| <b>Faculty qualifications</b>   | <ul style="list-style-type: none"> <li>• Percentage of faculty with advanced degrees</li> <li>• Percentage of faculty that are full-time, part-time, adjunct</li> </ul>  |
| <b>Effectiveness in preparing new teachers who are employable and stay in the field</b> | <ul style="list-style-type: none"> <li>• Pass rates on licensure tests</li> <li>• Hiring and retention data</li> </ul>   |
| <b>Success in preparing high-quality teachers</b>                                       | <ul style="list-style-type: none"> <li>• Teacher performance assessments administered near end of program</li> <li>• Tests of subject-matter knowledge and subject-matter knowledge for teaching</li> <li>• Ratings of graduates by principals/employers</li> <li>• Value-added estimates</li> </ul> |

The past fifteen years or so have seen the development of more valid and reliable methods for assessing pedagogical content knowledge and performance of teacher education graduates against teaching standards (e.g. Gitomer, 2009; Kennedy, 2010). Among them is the PRAXIS series of assessments developed by the Education Testing Service in the USA and the edTPA, originally developed at Stanford University.

### **PRAXIS II: Assessments of graduate pedagogical content knowledge**

The PRAXIS II assessments developed by the Educational Testing Service in the USA, include challenging and sophisticated methods for assessing subject-specific pedagogical knowledge in the different fields of teaching, including Early Childhood, primary and secondary specialist fields of teaching. (These assessments are currently being revised).

### **edTPA: Assessment of graduate classroom performance**

Methods for assessing performance are also becoming more valid and reliable. Increasingly, one of the more widely used is the *Educational Teacher Performance Assessment* (edTPA),<sup>4</sup> which is giving teacher preparation programs access to a multiple-measure assessment system aligned to state and

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<sup>4</sup> <http://edtpa.aacte.org/about-edtpa>

national standards. The edTPA process requires candidates to demonstrate the knowledge and skills required to help all students learn in real classrooms, and there are versions in 27 different teaching fields covering Early Childhood, Elementary, Middle Childhood and Secondary.

The edTPA is a standards-based method for assessing the performance of pre-service teachers toward the end of their clinical experience or intern period. It takes the form of a structured performance task based on teaching a unit of work over a number of lessons.

The edTPA is designed to meet the need for more valid and reliable ways to evaluate teaching effectiveness and improve teacher education programs. It complements existing entry-level assessments that focus on basic skills or subject-matter knowledge. It is comparable to the licensing exams that demand applications of skills in other professions, such as medical licensing exams, the architecture exam, or the bar exam in law.

The edTPA guidelines ask a student teacher to give an account of how they planned, taught and assessed a unit of work. They ask for a range of evidence including lesson plans, teaching materials, student assignments, unedited video clips, and samples of student work over the course of the unit, together with commentary on how the evidence shows how they meet the standards. Preparation for the edTPA is a powerful vehicle for professional learning. Teacher educators and supervising teachers provide formative feedback to candidates while they are developing their edTPA materials.

Qualified and trained teachers and teacher educators who are subject-matter experts with experience supporting beginning teachers score each assessment independently. Half of current scorers are recruited from higher education and half are recruited from P-12 educators, including National Board Certified Teachers. All scorers must meet rigorous qualifications including subject-matter experience, and recent experience teaching the subject (to P-12 students or methods courses to candidates) and mentoring or supporting beginning teachers.

edTPA is very much a product of the teaching profession. Hundreds of teachers and teacher education faculty have been involved at every stage of its development and continue to be involved in its implementation. A rich array of materials has evolved to support its implementation, including local evaluation training, curriculum mapping and embedded assessment design, webinars on academic language, resources for cooperating teachers and orientations for candidates. A National Academy of edTPA experts provides implementation consultation and face-to-face scoring training in key states.

edTPA underwent extensive field testing that showed it was a rigorous, valid assessment that is scored reliably. Information from the field tests was used to fine tune assessment tasks, scoring rubrics and candidate handbooks and, with the assistance of a standard-setting panel of educators and psychometricians, determine a recommended professional performance standard.

edTPA was declared fully operational in September 2013. Institutions in 34 states and the District of Columbia are using edTPA at different levels. Some states have policies in place requiring a performance-based assessment – such as edTPA – for teacher candidates, and others are exploring such policies, while other states are at an exploratory phase.

edTPA meets the need for states to establish a credentialing system that represents a common standard of knowledge, skills and abilities with documented validity of their relation to the tasks of a classroom teacher that is comparable across institutions. It offers a rigorous measure of entry-level teaching skills and readiness for the classroom – regardless of the path candidates take to teaching – that can be used across programs, focusing attention on the capacity to teach.

## **Summary**

There is a broad consensus across recent research about the knowledge, skills and dispositions that graduates of teacher education programs should acquire. This is providing a foundation for standards-based teacher education and the development of more valid and authentic methods for assessing progress toward and attainment of the standards.

A common set of best principles for the design, delivery and assessment of programs is also emerging. It is evident that some current Australian programs are consistent with these principles. Providers increasingly place a clear vision or model of accomplished teaching at the heart of program design, giving greater coherence to program delivery and clear expectations for the contribution that each unit of study makes to ensuring graduates meet standards for entry to the profession.

Of special interest to this review is the emergence of more sophisticated methods for assessing whether graduates are meeting standards for what beginning teachers should know and be able to do. These standards and assessment methods do not standardise teacher education. They encourage more innovation and research among teacher education providers into different ways to meet these high standards.

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## CHAPTER 3: PROVIDING EFFECTIVE PROFESSIONAL EXPERIENCES IN TEACHER EDUCATION

### Introduction

There is consensus on the central role of professional experiences in teacher education and a longstanding emphasis on increasing both the amount of time students spend in schools and the quality of that experience (Beauchamp, Clarke, Hulme, & Murray, 2013; Cohen, Hoz, & Kaplan, 2013; Department of Education, Science and Training (DEST), 2003; National Council for Accreditation of Teacher Education, 2010).

For the purposes of this chapter, the term *professional experience* is used to encompass the range of approaches to providing opportunities for pre-service teachers to practice and develop their teaching skills in a school environment. Although university-based experiences provide many opportunities for prospective teachers to develop their skills (such as through presentations to fellow students or in simulated classrooms, Grossman, 2010), the discussion in this chapter is limited to the characteristics of professional experiences undertaken by pre-service teachers in primary and secondary schools.

A move to reconceptualise teaching and teacher education as a *clinical practice profession* commenced in the United States and has been adopted in areas of teacher education internationally (Alter & Coggs, 2009; Kriewaldt & Turnidge, 2013; Rabe, 2012). Whether a clinical perspective is a relevant model for teaching is still being argued (see for instance, Hooley, 2011) and the purpose of this review is not to debate the underlying philosophy of the approach. The clinical practice model for teaching incorporates many elements of high-quality professional experiences; however, incorporating best practice in professional experiences is not exclusive to this approach.

Research evidence for the effectiveness of different types of professional experience on teacher development is limited; largely due to the inherent variability of student experiences across school contexts and programs (Capraro, Capraro, & Helfeldt, 2010; Cohen *et al.*, 2013). Evidence is also scarce on what pre-service teachers learn during their professional experiences and how different forms of professional experience shape students as teachers (Wilson & Floden, 2003).

Student professional experiences are embedded in specific education programs, making it difficult to isolate the effects of specific components of professional experience because of the interrelationships with other program features (Grossman, 2010). Nonetheless, the importance of professional experience for teacher education has prompted consideration of the critical elements of the experience and generated some notable attempts to increase the efficacy of professional experience. Moreover, there is an emerging consensus on the essential features of high-quality professional experiences that suggest best-practice principles in the design of teacher education programs.

Beginning teachers experience stress and high rates of attrition in many countries, which, in part, may be attributable to insufficient time developing an understanding of the profession during initial teacher education (Fantilli & McDougall, 2009; Nahal, 2010).

### Core features of high-quality professional experiences

This chapter is structured around the core features of high-quality professional experiences identified by Darling-Hammond (2006b) in case analyses of noted teacher preparation programs. Features shared by these high-quality teacher preparation programs include:

- early and extensive professional experiences, with intensive supervision by experienced teachers;
- close and genuine collaboration between universities and practising teachers in providing professional experiences; and

- carefully planned professional experiences that provide opportunities to connect coursework to practice.

This chapter concludes with some selected case examples of teacher education programs that have developed innovative approaches to delivering professional experience and describes the rationale for specific approaches.

To a large degree, the central components of an effective professional experience have been derived from research assessing student perceptions of the most influential aspects of their school experiences. For instance, a recent study focused on the perceptions of high-achieving American teachers on the most influential aspects of their practice in their development as teachers (Behrstock-Sherratt, Bassett, Olson, & Jacques, 2014). The most important element at the pre-service stage was *access to a high-quality clinical practicum* (Behrstock-Sherratt *et al.*, 2014, p. 8).

The most important element of an effective clinical practicum identified by these teachers, to which most of these skilled teachers had access, was a supervising teacher effective in promoting school students' learning who was also a skilled mentor. These high-achieving teachers also articulated the most important characteristics for selecting supervising teachers. These comprised training for the supervising teacher in undertaking the role, a supervising teacher with more than five years of teaching experience, and who had taught in the same subject area as the pre-service teacher (Behrstock-Sherratt *et al.*, 2014, p. 10).

### **Early, extended and integrated professional experiences**

Arguments over the best way to prepare teachers for the classroom are longstanding. Teacher training has often been university-dominated with brief, disconnected professional experiences. At the other extreme the theoretical basis for teaching may be minimised in favour of school-based training in an apprenticeship model (see for instance *School Direct* in England). Both positions are untenable and high-performing teacher education programs strive for balance and integration between university-based experiences and professional experiences (Knight & Turner, 2013; Levine, 2006).

The minimum number of days that teacher education programs must allocate to students' professional experiences is mandated by the Australian Program Standards. However, the total time allocated, and the structure and timing of professional experiences varies widely across providers. Many initial teacher education programs in Australia allocate in excess of the minimum requirements (Ingvarson *et al.*, 2004).

The trend, particularly in the United States, has been for longer practical experiences occurring earlier in the course (Grossman, 2010), although there is no research evidence on the optimal number of days to allocate to professional experience in teacher training. In England, the government has mandated two thirds of postgraduate teacher training be allocated to professional experiences; a part of a wider move to shift the balance of responsibility for teacher training to schools (Hobson, Ashby, Malderez, & Tomlinson, 2009). Early timing of the first professional experience enables prospective teachers to preview the profession and to determine early in their training whether they are committed to a teaching career (Gomez, Strage, Knutson-Miller, & Garcia-Nevarez, 2009).

Research evidence suggests that extended professional experience is a feature of education programs that prepare high-quality teachers for the classroom (Darling-Hammond, 2012, Ure, 2009). Extended time in schools is necessary, but must occur in conjunction with strong connections between theory and practical experiences, and where schools and universities share an understanding of the purpose of professional experience for students. Levine (2006) advocates for professional experiences commencing at the beginning of teacher education and providing opportunities to immediately relate university learning to classroom experiences, where classroom

experiences can be discussed at university shortly after the event. Levine's (2006, p. 81) review of university-based teacher education programs in the United States identified that in exemplary models of teacher education:

*The field experience component of the curriculum is sustained, begins early, and provides immediate application of theory to real classroom situations.*

Darling-Hammond (2006b) analysed the features of seven teacher preparation programs in the United States known for consistently preparing high-quality teachers. She identified extended professional experiences as a shared characteristic of these programs, with each including at least 30 weeks of supervised teaching practice in schools. Extended professional experiences in these programs were carefully designed to link with and support university-based coursework. Moreover, high-quality programs had strong connections between universities and schools in the provision of professional experiences, they worked to develop a shared understanding of the placement purpose and they had a common commitment to enhancing teacher education.

There is a consensus that quality teacher preparation programs should dedicate a significant amount of time to professional experience. Extended professional experiences also provide opportunities for pre-service teachers to gain exposure to a range of school environments and different teaching styles, and to have sufficient time to develop their teaching skills.

Yet simply increasing the amount of time that students spend in schools is unlikely to result in better preparation of teachers without consideration of other essential features of professional experience that increase the quality of the placement. There is increasing confidence that research is providing a sounder knowledge base for effective teaching and, therefore, a better guide to the knowledge that programs should provide opportunities for future teachers to learn how to apply in practice. The research emphasises the importance of creating a balance between time devoted to university-based learning and on-the-job learning, with a meaningful integration of the two experiences central to improving outcomes for prospective teachers (Deed, Cox, & Prain, 2011).

University-based and school experiences that are not mutually reinforcing are unlikely to develop pre-service teachers' skills. For instance, an important component of professional experience includes the opportunity for pre-service teachers to practise classroom management strategies. There is good evidence of research-based classroom management strategies that are effective in assisting teachers to develop a positive classroom environment (Greenberg, Puttman, & Walsh, 2014). However, the degree to which these strategies are taught in teacher-preparation programs is likely to vary. In the United States, for instance, research-based classroom management strategies may not be taught at university, or these strategies may be taught, but pre-service teachers may not be required to practise these skills in the classroom during their training. Leaving students to develop classroom management skills during their field experience without appropriate instruction on effective strategies is unlikely to prepare teachers well for the classroom.

The lack of integration between theoretical knowledge and professional experiences is a long-standing issue in teacher education. To address this disjunction requires reconceptualising traditional relationships between universities and schools in the provision of professional experiences. Research on approaches to increasing integration of theoretical and practical experiences through school-provider partnerships is considered in the following section.

### **Genuine partnerships between providers and practicing teachers in the delivery of professional experience**

The wide variation in school and classroom contexts in typical professional experiences means that it is difficult to enforce consistent expectations about the kinds of skills that pre-service teachers must practice while in schools (Greenberg *et al.*, 2011). Traditional approaches to professional experience



typically involve a number of days in different educational settings, with pre-service teachers receiving guidance from a supervising teacher.

In many education programs, there may be little connection between university-based teaching and students' professional experiences and minimal contact between university-based educators and classroom teachers. Teacher education providers may find it difficult to encourage connections between university teaching and student experiences due to the diversity of student placements, contrasting practices emphasised by universities and schools, and teacher educators' lack of familiarity with the school environments (Capraro *et al.*, 2010).

One approach to overcoming the disconnection between university-based teaching and student professional experiences is in formulating partnerships between universities and practising teachers for the delivery of professional experiences. Such partnerships aim for better integration of theoretical content and practical experiences.

Many different approaches and models of deliberately cultivated school-provider partnerships exist, with features including selection of high-quality educators to act as mentors, extensive support from university mentors and clear expectations communicated from universities to schools about the nature, purpose and requirements of students' professional experience. Collaboration between universities and schools seeks to overcome potential barriers to the development of pre-service teachers outlined previously, including pre-service teachers' experiences of conflict between university teaching and practical experiences, such as practices modelled or advocated by supervising teachers (Capraro *et al.*, 2010).

There are numerous examples in the United States literature of programs based on such linkages, often through Professional Development Schools – settings that are designed to promote high-quality practice and to provide higher levels of support for new teachers (Grossman, 2010). Grossman cites widespread evidence that teachers prepared in such settings believe themselves to be better prepared for their first year of teaching (Clift & Brady, 2005) and are more likely to remain in teaching (Latham & Voget, 2007).

Excellent examples of strong partnerships are also emerging in Australia, including the *MTeach* program at the University of Melbourne (Davies, Anderson, Deans, Dinham, Griffin, Kameniar, Page, Rickards, Taylor, & Taylor, 2013), the *Queensland University of Technology Exceptional Teachers for Disadvantaged Schools Program*<sup>5</sup> (Lampert & Burnett, 2011; Lampert, Burnett and Davie, 2012) and the *Bachelor of Learning Management at Central Queensland University* (Ingvarson *et al.*, 2005; Smith & Lynch, 2010; Lynch, 2012; Allen & Turner, 2012; Knight & Turner, 2013; Lynch and Yeigh, 2013).

A recent initiative to strengthen school – university partnerships is the *School Centres for Teaching Excellence* (SCTE) in Victoria. As part of the Smarter Schools National Partnership on Improving Teacher Quality, the Victorian DEECD introduced seven SCTE initiatives in 2011. These initiatives involved building collaborations between universities and schools and focused on providing high-quality pre-service teacher education, professional learning and research opportunities. All SCTE models involved collaboration between one university and a group of schools, in an arrangement that allowed pre-service teachers to spend extended periods in schools.

A formal evaluation of the SCTE initiatives was conducted from 2012–2013 by ACER. There were two components to the evaluation. Case studies of each partnership involved evaluation staff making numerous visits to each site, interviewing program participants, including university staff, project coordinators, school principals and staff, and pre-service teachers. It was clear from the case

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<sup>5</sup> <https://www.qut.edu.au/education/about/projects/exceptional-teachers-for-disadvantaged-schools>

studies that participation in SCTE had facilitated new school-university partnerships and strengthened existing partnerships, and that all categories of participant (school principals, mentor teachers, university staff and pre-service teachers) had overwhelmingly positive appraisals of the program benefits. In a survey of participating school principals, 100% of respondents expressed a desire that the partnerships they had established should continue.

A follow-up online survey was administered to 2011 and 2012 graduates of programs from SCTE sites, and to graduates from other teacher preparation programs in the same set of universities. The surveys were designed to assess the extent to which graduates believed they had been prepared to attain the seven graduate teacher standards set out in the APST, and as required by the Australian Program Standards for accrediting teacher education programs. Responses demonstrated that, in relation to these Standards, graduates of SCTE programs rated their programs as more effective in preparing them to meet the Standards than did graduates of other programs in the same universities. Furthermore, graduates of 2012 SCTE programs rated their programs as more effective in preparing them to meet the APST than did graduates of 2011 SCTE programs, indicating that the 2012 programs fully 'bedded down' were more effective than the 2011 programs (when they were still in their implementation phase).

In general, the evaluation provided clear evidence, not just that the school-university partnerships established in the SCTE programs were effective, but that they were more effective than the programs that they had replaced, or enhanced. There was a clear case for continuing this type of provision and a new initiative for 2014 (*Teaching Academies for Professional Practice*) has been introduced with a view to continued expansion. These Teaching Academies will have much in common with the Professional Development Schools referred to earlier.

Programs such as the *Bachelor of Learning Management* and the *School Centres for Teaching Excellence* provide Australian evidence that is consistent with the conclusion reached by Darling-Hammond (2010) in reviewing what has been learned from two decades of debate about teacher education in the United States. Learning from practice, she concludes, has been least effective when it has 'required students to take batches of front-loaded coursework in isolation from practice, then adding a short dollop of student teaching to the end of the program, often in classrooms that do not model the practices previously described in abstraction' (p. 40). In contrast, she concludes that:

*...the most powerful programs require students to spend extensive time in the field throughout the entire program, examining and applying the concepts and strategies they are simultaneously learning about in their courses. Candidates work alongside teachers who can show them how to teach in ways that are responsive to learners while they take interwoven coursework. Such programs typically require at least a full academic year of student teaching under the direct supervision of one or more teachers who model expert practice with students who have a wide range of learning needs* (Darling-Hammond, 2010, p. 10).

The Australian evidence reviewed above is clearly consistent with this conclusion.

## **Mentoring and support from supervising teachers**

### ***The changing role of the supervising teacher***

It has been common practice for pre-service teachers to be guided in their professional experiences by a supervising teacher who provides direction and mentoring, feedback on teaching practice and contributes to student assessment.

The presence of a supervising teacher is central to supporting pre-service teachers to navigate the transition to the school environment and in providing a high-quality professional experience for students (Clarke, Triggs, & Nielsen, 2014; Leshem, 2012). Students' experiences in schools may initially be stressful and the supervising teacher can be an important resource in reducing any perceived stress (Hemmings & Hockley, 2002). Pre-service teachers identify the support of a

supervising teacher as critical to a positive professional experience and may report negative effects, such as poor self-confidence, when they feel unsupported by their supervising teacher (Moody, 2009).

The trend for longer, more intensive professional experiences heightens the responsibilities of the supervising teacher and requires an even greater focus on the mentor's skills. The quality of the relationship between the pre-service teacher and their supervising teacher or mentor, and the expertise of the mentor in modelling teaching practice and providing effective feedback are thus critical to the quality of professional experiences (Ambrosetti, 2011).

Supervising teachers undertake a range of different tasks in teacher education, including the provision of feedback and models of teaching practice, facilitating pre-service teachers' introduction to the school context and to other teachers, being agents of socialisation to the profession and as assessors of student performance. The degree to which these roles provide opportunities for pre-service teachers to develop their skills is highly variable. For instance, research suggests that the quality of feedback provided by supervising teachers is lessened by tendencies to focus on technical aspects of teaching, to focus on existing knowledge rather than developing new knowledge and to largely reflect the preferred practices of the supervising teacher (Clarke *et al.*, 2014; Murray *et al.*, 2008). Pre-service teachers and their supervising teachers also report different perceptions about the frequency with which specific mentoring practices to develop pedagogical knowledge occur (Hudson, Spooner-Lane, & Murray, 2013).

The supervising teacher role in Australia remains largely an untrained role, with little support from universities in developing mentoring skills (Hudson *et al.*, 2013). Processes for selecting supervising teachers are often not explicit and there may be little or no support for supervising teachers to undertake the role (MacDougall, Mtika, Reid, & Weir, 2013).

### ***Qualities of supervising teachers***

To undertake the role of the supervising teacher requires individuals with specific skills and personal attributes. Three key attributes of supervising teachers were highlighted in the National Council on Teacher Quality report on student teaching in the United States (Greenberg *et al.*, 2011). Supervising teachers should be experienced teachers, they must be high-quality teachers, and they must have a capacity to effectively mentor pre-service teachers. Moreover, teachers who meet these criteria must be willing to take on this role, often where there are few incentives to take on these additional responsibilities. As a result, Greenberg *et al.* (2011) estimate that in a school with 25 available teachers, only one may meet the selection criteria for an effective supervising teacher and be willing to undertake the role. Teacher education programs in the United States meanwhile often do not apply the quality standards for selection of supervising teachers, or apply systematic processes for evaluating supervising teacher performance (Greenberg *et al.*, 2011).

### ***Selecting and developing supervising teachers***

The trend toward longer, more intensive student professional experience focuses greater attention on the role of the supervising teacher. Recognition of the importance of the role of supervising teacher has led to innovations to increase the effectiveness of the role. The main ways in which the role of the supervising teacher has been reconceptualised is in purposeful selection of high-quality teachers to act as mentors for pre-service teachers, and in providing professional learning for prospective supervising teachers to act in the role.

These changes have generally occurred in the context of closer connections between teacher education providers, schools and supervising teachers (see for instance MacDougall *et al.*, 2013; Zimpher, 1988). For instance, Wilson (2006) reported on The *Clinical Master Teacher* program in the United States, which selects experienced, high performing teachers to perform the role of supervising teacher, and gives them responsibility for assessment and feedback normally undertaken

by the university supervisor. *Clinical Master Teachers* work in teams in schools to mentor groups of students; a university-based liaison also serves as a member of the supervising team.

Greenberg *et al.* (2011) identify the *Rodel Exemplary Teacher Initiative* in Arizona, which identifies high-performing potential supervising teachers in selected schools through examination of student achievement data. These teachers must also receive a recommendation from their principal and undergo interviews and observations of their classroom practice before being selected. Supervising teachers in this program also receive financial remuneration if they mentor pre-service teachers for three years.

Investing in the skills of supervising teachers has benefits for both pre-service teachers and their mentors. Across a number of studies, professional learning for supervising teachers in mentoring pre-service teachers has shown positive benefits including increasing the frequency of interactions between students and supervising teachers and increasing the amount of feedback on performance (Killian & McIntyre, 1986). Evidence also suggests supervising teachers provided with professional development on the structure and purpose of student professional experience are better able to develop theoretical concepts in their students (Hulshof & Verloop, 1994).

### **Assessing pre-service teachers' performance**

Increasingly, there are demands on schools to undertake tasks associated with assessing pre-service teachers' professional capacity against teaching standards. While receiving a passing grade is a typical requirement for graduation from teacher education courses, Darling-Hammond and Snyder (2000) have argued for the importance of authentic assessments of teaching as an approach to better preparing beginning teachers for classroom practice. Authentic assessment, as outlined in a recent report to the Queensland College of Teaching (2012, p. 25):

*...requires pre-service teachers to deploy combinations of knowledge, skills, and dispositions in their professional life. Authentic assessment makes the core aspects of teaching visible and measurable against a set of agreed standards. Authentic tasks engage pre-service teachers in processes that are necessary to act professionally in planning curriculum units for a specific group of students, designing episodes of teaching, teaching, and evaluating the effectiveness of their teaching. Authentic assessment, therefore, requires pre-service teachers to be explicit about their thinking and decision-making in designing teaching episodes, to reference the sources and rationale for their ideas, and to reflect upon the actual teaching experience and plans for revising and redesigning the teaching episodes. This dissolves the division between theory and practice and creates a system of reflective practice that adds to the professional knowledge of teaching.*

Authentic assessment practices, which include a greater use of cases, portfolios, exhibitions and action research, have been found to be in greater use in some teacher preparation programs in the United States which were deemed to be producing high-quality beginning teachers (e.g. Stanford) and are also typical of teacher education in high-performing countries more broadly (e.g. Finland, Singapore). Authentic assessment practices are also evident in Australian teacher education; however, the extent to which this occurs is likely to be variable, as is the case for other aspects of the provision of professional experience. Interviews with a small number of pre-service teachers and supervising teachers in a recent Victorian study suggested that there was often little information about the criteria for summative assessment of professional experiences and little connection between developmental feedback and summative assessments. Assessments were often perceived as subjective, disconnected from the university and not well-matched to the practices of a beginning teacher (Ure, 2009).

Authentic assessments of professional experiences provide opportunities for integration of theory and practice and contribute to the close connections between university-based and school-based experiences that are central to high-quality teacher education (Darling-Hammond, 2006a; 2006b). As

a result, transforming the assessment of professional experiences in initial teacher education is a central component of developing high-quality beginning teachers.

### **Summary**

The evidence reviewed in this chapter has briefly described some important characteristics of high-quality professional experiences in initial teacher education. The chapter has emphasised the importance of professional experiences that commence early in teacher education, that are extended, and that are highly integrated with university-based teaching.

Connectedness between professional experiences and university teaching can be greatly enhanced by developing stronger relationships between schools and universities. Greater collaboration between schools and universities may encompass a greater investment in the role of the supervising teacher and ongoing cooperation in developing and assessing pre-service teachers' performance during their professional experiences.

Though these characteristics have been discussed separately, it is evident that these elements are highly related. A focus on one element (e.g. increasing the overall amount of time pre-service teachers spend in schools) without due consideration of related elements (e.g. the quality of supervising teachers and the connectedness of theory with practical experiences) is unlikely to improve the quality of professional experience. In contrast, attention to all these elements is essential in contributing to the coherence and integration required of high-quality teacher education programs (Darling-Hammond, 2006b).

Though the importance of professional experience is undisputed, there are significant challenges to extending the duration and improving the quality of professional experience. A lack of structure, clear purpose or definable outcomes for pre-service teachers' professional experiences has been highlighted as a problem of many teacher education programs (Byrd & Fogleman, 2012; Zeichner, 2002).

Providing quality student professional experience is resource-intensive and the international and Australian experience reflects difficulties finding suitable placements for students (Greenberg, Pomerance, & Walsh, 2011; House of Representatives Standing Committee on Education and Vocational Training, 2007; Ingvarson *et al.*, 2004). There are also considerable resourcing implications in increasing student access to professional experiences, in increasing the demands on supervising teachers, and in developing closer relationships between schools and university teacher education providers (DEST, 2003; House of Representatives Standing Committee on Education and Vocational Training, 2007). Yet there are significant consequences of poor preparation of teachers, including higher turnover among poorly-prepared beginning teachers (Headden, 2014), which should focus attention on the need to meet these challenges.

## CHAPTER 4: SUPPORT FOR THE TRANSITION FROM TEACHING STUDENT TO PROFESSIONAL TEACHER

The purpose of Chapter 4 is to review national and international literature and research on factors that most successfully support successful transition to the teaching profession.

### Introduction

For new teachers, the transition from pre-service teacher to professional has long been acknowledged to require targeted support (Committee for the Review of Teaching and Teacher Education, 2003; American Federation of Teachers, 2012; Kelley, 2004). This transition involves the process of being socialised into a new school environment as well as growing and adjusting to the expectations of a new professional role (Ingersoll & Strong, 2011). For the purposes of this chapter, the transition from new teacher graduate to full member of the profession will be referred to as the *induction period*. This will be considered separately to *induction programs* or the formal courses that new teachers complete during the induction period.

Until recently in Australia, full entry into the profession or teacher registration was granted automatically following graduation from a teacher education course. However, current requirements allow graduates to apply for provisional registration while full registration can only be achieved once an applicant demonstrates that his or her experience and practice meets the Proficient level of the APST (AITSL, 2011b). State and territory teacher regulatory authorities are responsible for the registration process, which includes ensuring that the process is nationally consistent. The induction period for beginning teachers in Australian schools typically falls in the period between graduation and full registration.

This chapter will investigate what international literature suggests is best practice for the induction period and induction programs through a review of research, theory and policy. For the induction period, the review will discuss the growing body of research that points to standards-based performance assessments as tools that can direct new teachers' professional development in their beginning years and promote highly effective practice (Darling-Hammond, 2009; Darling-Hammond, Amrein-Beardsley, Haertel & Rothstein, 2012; Feuer, Floden, Chudowsky & Ahn, 2013). Best practice in terms of induction programs will also be reviewed with regard to their impact, and their key components and features. Theory and policy recommendations about high quality induction programs will also be discussed. The final sections of this chapter will examine how the induction period is managed in Australia.

### The induction period

A growing theme to emerge in literature on the induction period is the idea that the beginning years of teaching should be viewed as a continuation of the teacher education process. As part of a set of principles developed by the Carnegie Corporation to facilitate the improvement of teacher preparation programs in institutions such as Stanford University and Boston College, a recommendation was made for all graduates of teacher education programs to complete a two-year induction period or residency (Feuer, Floden, Chudowsky, & Ahn, 2013). Caldwell and Sutton (2010) reviewed school induction internationally and in Australia and proposed that induction be regarded as 'a process that commences from the time a student enters a pre-service program and continues for at least a year after he or she enters the profession' (p. 93). In a report for the Asia Society, AITSL (2014) emphasised that the transition to employment for new teachers is filled with new learning and development challenges in addition to professional teaching expectations. The idea of induction as the end point of a continuum of initial teacher education is especially relevant when considering that new teachers will most likely need additional opportunities to develop classroom management skills once they graduate from a tertiary degree. Many students of teacher education programs in

Australia and the United States, for instance, will not have had the chance during their professional experiences to set up a classroom and establish guidelines and rules with students as placements frequently do not occur until the second half of the school year (Headden, 2014).

Ingersoll and Strong (2011) commented that the purpose of teacher induction is to improve retention and performance – ‘to both enhance, and prevent the loss of, teachers’ human capital, with the ultimate aim of improving the growth and learning of students’ (p. 225). Indeed many countries require the completion of an induction period for new teachers, or a probationary period of teaching that must be completed before full entry into the profession, as a means of ensuring and retaining a high quality teaching workforce (Ingvarson, 2012). The role of the induction period in readying teachers for certification into the teaching profession was investigated in the IEA’s TEDS-M (Ingvarson *et al.*, 2013). In the 17 countries reviewed, there was a variety of policies and practices. For instance, in some countries, certified entry into the teaching profession simply involved meeting the graduation requirements of an initial teacher education program.

Alternatively, there were some countries where teacher graduates were required to pass additional tests of professional knowledge following graduation in addition to performance assessments during a probationary period. In Chinese Taipei, the process of achieving certification was found to be particularly demanding:

*After completing their initial teacher education program with a passing grade, graduates have to take the Ministry of Education’s Teacher Qualification Assessment. If they pass the test, the ministry issues a teaching credential, which officially qualifies graduates to teach. However, if graduates apply for a teaching position in a particular region, they must participate in additional onsite screening and selection processes (Ingvarson et al., 2013, p. 221).*

Part of the TEDS-M analyses also included an examination of whether quality assurance policies like these related to higher quality teachers in terms of candidates’ mathematics content and pedagogical content knowledge. It was found that future primary generalist and secondary teachers from Chinese Taipei scored significantly higher than all other countries on these performance measures.

Ingvarson and Rowe (2008) argued for policies that build teacher quality by building teacher capacity and suggested that this could be achieved through evaluation of teacher quality during the induction period using standards-based tools. Darling-Hammond (2010) stated that standard-based teacher performance assessments have the potential to ‘inform personnel decisions, but also leverage improvements in preparation, mentoring and professional development’ (p. 1). A growing literature suggests that best practice for the induction period involves using these types of assessments as a framework for the beginning years of teaching as they provide a clear picture of the requirements and expectations that teachers must meet to transition from probationers to full members of the teaching profession (Council of Chief State School Officers, 2012; Darling-Hammond, 2009; Darling-Hammond, *et al.*, 2012; Milanowski, Kimball & White, 2004; Moir & Gless, 2001). Furthermore, there is evidence to suggest that results from standards-based teacher evaluation systems are positively related to students’ achievement scores (Milanowski, *et al.*, 2004).

In the USA, there are several examples of standards-based performance assessments that are used to direct the professional development of prospective and new teachers. Published by the Educational Testing Service, the *Praxis Series* of assessments provide a measure of content knowledge, pedagogical content knowledge and teacher skills that graduates must pass in some States to gain an initial license to teach (Brown, Brown & Brown, 2008). Another example is the Performance Assessment for California Teachers (PACT), which acts as a measure of teacher readiness in California and was designed by a group of colleges and universities. Completion of PACT involves the development of subject-specific portfolio entries (e.g. curriculum units) and a summative assessment (Chung, 2008). Darling-Hammond, Newton & Wei (2013) reviewed the

evaluation tool and noted that one of its strengths was that results could be used to inform prospective teachers' future professional growth. They found that those who completed the assessment felt they had benefitted by learning more about student needs and learning and how to reflect on their own practice. An updated, national version of PACT has been developed through a partnership of the Stanford Center for Assessment, Learning and Equity (SCALE) and the American Association of Colleges for Teacher Education. Known as the edTPA, this subject-specific, performance-based assessment is designed to both evaluate and support prospective teachers (<http://edtpa.aacte.org/about-edtpa#Overview-0>). In Australia, an example of this type of tool is the Deakin Authentic Teacher Assessment (Dixon, Mayer, Gallant & Allard, 2011).

### **Induction programs**

It is commonly believed that induction programs are a way of formally supporting new teachers as they transition into the profession; however, there is limited research evidence on the effectiveness of specific programs overall or of their components (Darling-Hammond, Wei, Andree, Richardson & Orphanos, 2009). This may be due to variability in the structure and content of teacher induction programs (Ingersoll & Strong, 2011). Furthermore, misconceptions also exist in policy and literature with regard to the use of 'mentoring' and 'induction'; rather than recognising that mentoring should be part of an induction program or larger support strategy for new teachers, the terms are often seen as interchangeable (Potemski & Matlach, 2014). The OECD's 2008 TALIS found that three quarters of new teachers surveyed were involved in some kind of induction program (Jensen, Sandoval-Hernández, Knoll & Gonzalez, 2012).

In the more recent 2013 cycle of TALIS, results showed that approximately 95.1% of Australian lower secondary teachers work in schools where their principals reported the availability of formal induction programs for new teachers to the school (OECD, 2014). This rate was compared with 100% for Singapore, 53.5% for Finland, an average across participating TALIS countries of 65.8%, and a rate of 98.7% for Australia in the 2008 TALIS cycle. The proportion of Australian teachers working in schools where principals reported informal induction activities (90.3%) was also above the TALIS average (76.5%); however, it was below the percentage found for Singapore and Finland (98.6 and 92.7%, respectively). Interestingly, for the majority of participating TALIS countries, there was a discrepancy between the reported availability of formal induction programs and the participation rates reported by teachers. In Australia, only 52.6% of teachers reported participating in a formal induction program, which was at odds with the aforementioned 95.1% of principals who reported that these programs were available at their schools. This variation between availability and participation was also observed for Finland (16.3% participation), but was not as large for Singapore – 80% of teachers reported participation in formal induction programs, which was one of the highest participation rates found in the study. TALIS also investigated participation in mentoring programs. In Australia, 97.4% of principals reported the availability of a mentoring program accessible for beginning teachers compared with 99.2% for Singapore, 34.6% for Finland, 74.2% for the TALIS average.

### ***Induction programs and teacher retention***

Research suggests that induction programs have a positive influence on teacher retention (Kelley, 2004). This is an important finding, given the high rates of teacher turnover in the beginning years of teaching (Ingersoll & Kralik, 2004). In the USA, Headden (2014) noted that within the first three years, a third of new teachers decide to leave the profession and a large proportion of these are likely to be those that show the most promise. An induction period for new teachers is considered to be one way of addressing these problems as it is designed to provide the support required to transition successfully into the profession and in doing so mitigate the poor morale that can lead to a desire to exit the career. Ingersoll and Strong (2011) reviewed 15 studies that evaluated the effects of induction and found that higher levels of retention, dedication to teaching and satisfaction were reported by new teachers who had participated in an induction process. These teachers also



'performed better at various aspects of teaching, such as keeping students on task, developing workable lesson plans, using effective student questioning practices, adjusting classroom activities to meet students interests, maintaining a positive classroom atmosphere, and demonstrating successful classroom management' (p. 225).

### ***Mentoring***

Most teacher induction programs are characterised by some sort of mentoring component (Arends & Rigazio-DiGilio, 2000). In a USA survey, expert teachers were asked to retrospectively consider what types of support were most important for their professional development during the novice stage of their teaching; access to a mentor was the most highly ranked experience (Behrstock-Sherrat *et al.*, 2014). Howe (2006) reviewed a range of international mentoring programs and concluded that the opportunity to learn from expert mentoring, to collaborate and then reflect on practice was a crucial element of high-quality programs that promoted a successful transition period for new teachers. Smith and Ingersoll (2004) analysed data from a national staff survey in the USA and found teacher retention was positively influenced by having a mentor from the same subject area. Ingersoll and Kralik (2004) reviewed 10 studies that evaluated the impact of mentoring programs and reported that they had found some evidence to suggest retention was positively affected. However, they also commented that research findings were limited by a range of issues including variation in program length and delivery mode and the inability to distinguish the effects of mentoring as opposed to other contextual factors (e.g. the influence of school culture on teachers' decision to stay in schools). Smith and Ingersoll (2004) noted that there was a need for research on mentoring to assess the effects of factors like mentor selection, training and frequency of contact between mentor and mentee on the success of the mentoring relationship.

### ***Other features and activities of induction programs***

The opportunity to learn from and collaborate with a mentor is only possible if new teachers, and their mentors, have the time to pursue this relationship. Unfortunately, the 2008 results of the OECD's TALIS showed that the workload (e.g. the amount of time teaching) of new teachers and experienced teachers was similar across most participating countries (Jensen, Sandoval-Hernández *et al.*, 2012). Studies investigating successful induction programs have emphasised the importance of a reduced workload for new teachers as they move through the transition period (Arends & Rigazio-DiGilio, 2000). The significance of professional development has also been highlighted (American Federation of Teachers, 2012). Luft, Roehrig & Patterson (2003) found that the greatest improvement in teaching practices (e.g. planning standards-based lessons) for a group of new science teachers was found for participants in an induction program with science-focused professional development rather than those who participated in a general program (e.g. orientation to school procedures) or no program at all. Arends and Rigazio-DiGilio's (2000) review of new teacher induction programs found that most programs were conducted for one to two years.

### ***Theory and policy on induction programs***

Moir and Gless (2001) reviewed literature on teacher induction programs and proposed that quality programs should have five underlying components:

1. Program vision
2. Institutional commitment and support
3. Quality mentoring
4. Professional standards
5. Classroom-based teacher learning

The first component, program vision, refers to the importance of encouraging teacher retention while also working with new teachers to set high professional expectations. Institutional

commitment and support was outlined to emphasise the requirement that schools should prioritise supporting new teachers during their transition period. In particular, Moir and Gless noted that schools and government bodies need to provide adequate resources and time to ensure the success of the induction process. They proposed that this was also fundamental for the development of quality mentoring, another key component of induction. According to Moir and Gless, quality mentoring is dependent on a rigorous selection process and advanced training for mentor staff. Professional standards, another component, were identified as fundamental for guiding the learning of new teachers and framing the dialogue between new teachers and their mentors. The final component outlined was classroom-based teacher learning. Moir and Gless proposed that embedding learning opportunities into everyday practice (e.g. through observation, collaborative lesson design or model teaching) is one of the most important types of professional development as the strategies developed or modelled incorporate contextual demands and students' individual learning needs.

Potemski and Matlach (2014) presented a different perspective in their brief for the American Institutes for Research and specified the policy requirements needed to create and implement effective teacher induction programs. First, they noted that program requirements had to be set. They recommended this be achieved by creating program standards, linking certification (or registration) to participation, setting clear expectations for all staff involved in the induction process, dictating that an induction program length should be at least two years and creating eligibility conditions for prospective mentors. Second, Potemski and Matlach emphasised the importance of allocating enough time for induction to be completed by both new teachers and mentors through enabling reduced workloads and specifying a minimum amount of time required to complete the induction program. Third, they noted adequate funding is crucial for the allocation of resources to sustain and implement induction programs. Fourth, both new teachers and mentors require continuing professional development throughout the induction process. Fifth, induction policy should allow for contextual variation and be flexible enough to allow educational practitioners to adapt content to the needs of the situation.

When considering best practice in terms of induction programs it is important to remember that they are situated within a wider educational system. Sahlberg (2011a) notes that in Finland, induction programs are developed at the school level and vary widely – 'some schools have adopted advanced procedures and support systems for new staff, whereas other schools simply bid new teachers welcome and show them their classrooms' (p. 36). It needs to be remembered that future teachers in Finland have had extensive experience as part of a school's staff by the time they graduate, which helps to make for a seamless transition for many after graduation. There is also no assessment of teacher quality upon entrance to the profession; however, Finland is often highly regarded for the quality of its educators.

### ***Examples of induction programs***

Scotland's Teacher Induction Scheme is a non-compulsory program run by the General Teaching Council for Scotland and the Scottish Government Education Department and an example of a program that places emphasis on the importance of the mentoring relationship for early career teachers. In addition to guaranteeing teacher graduates a full-time teaching position upon graduation, a reduced class schedule (0.8 FTE) and ongoing professional development, the program also provides the early career teacher with a mentor (Caldwell & Sutton, 2010). The mentor is an experienced teacher who has 0.1 FTE allocated to fulfilling this role. Weekly mentoring meetings are dedicated to identifying early career teachers' progress as measured against the standard required to meet full teaching registration at the end of the probationary period (Caldwell & Sutton, 2010). Similarly in California's *The Beginning Teacher Support and Assessment program*, mentor and early career teacher plan and reflect on progress measured against the California Standards for the Teaching Profession (Olebe, 2001). Donaldson (2011) noted that the Scottish Teacher Induction

Scheme was considered among the world's best induction programs, however improvement was needed to ensure that mentors were both carefully selected and trained.

In Ontario, all public schools are required to offer the New Teacher Induction Program (NTIP) to new teachers and for these teachers participation in this program is mandatory. Darling-Hammond and Rothman (2011) emphasise that the program is part of a wider strategy of an education system focused on building teacher capacity. Glassford and Salinitri (2007) point out that the NTIP 'evolved from a combination of political and programmatic needs' (p. 11), a growing consensus that a formal orientation program was vital to properly support new teachers, and to combat poor morale within the profession and a negative image of the profession in the community.

The NTIP Induction Elements Manual (Ontario Ministry of Education, 2010) states that the program is:

...the second step in a continuum of professional development for teachers to support effective teaching, learning, and assessment practices, building on and complementing the first step: pre-service teacher education programs. It provides another full year of professional support so that new teachers can develop the requisite skills and knowledge that will enable them to achieve success as experienced teachers in Ontario. (p. 3)

The manual continues by outlining three key elements to induction – orientation to the new school, mentoring and professional development. It also notes that principals must conduct two appraisals of new teachers within the first 12 months of teaching. Failure to achieve two *Satisfactory* ratings for these performance appraisals results in the NTIP continuing for another year so that additional support can be provided. If two *Satisfactory* ratings cannot be achieved within the first 24 months of teaching, then a teacher is no longer eligible to complete the NTIP and a termination of employment is recommended. Each new teacher is required to complete an Individual NTIP Strategy Form with their mentor to document their particular induction goals and track their progress. The responsibility of managing the program lies with the principal of each school while a designated NTIP superintendent is charged with ensuring the quality of programs within schools and reporting to the Ministry of Education. The funding model of the NTIP gives schools an allocated amount towards the program, which must be used for school-based induction resources, and activities, for example, release time for new teachers and mentors.

In an early evaluation of the scheme, Glassford and Salintri (2007) reviewed the NTIP against Moir and Gless' (2001) five key components of a quality induction program, outlined earlier in this chapter. They found that the NTIP required further development in the areas of institutional commitment and support, and quality mentoring and they questioned the ability of the program to achieve positive results particularly without a stronger commitment from government bodies. However, Pervin and Campbell (2011) suggested that the program has had positive results noting that in a 2008-2009 evaluation 82% of the school boards in Ontario reported that 90% of new teachers intended to return for a second year of teaching.

### **Induction into teaching in Australia**

One source of information for understanding the experience of early career teachers in Australia during the transition period is the SiAS survey. The 2013 survey asked early career teachers (i.e. those who had been teaching for 5 years or less) whether they had been provided with any of six different forms of assistance, and how helpful they had been (McKenzie *et al.*, 2014). The same question was asked in SiAS 2010 and a similar one in SiAS 2007, so it is possible to examine changes over time.<sup>6</sup>

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<sup>6</sup> The 2007 survey did not include 'observation of experienced teachers teaching their classes'.

Among early-career primary teachers in 2013 the three most commonly provided forms of assistance were:

- A designated mentor (provided to 75% of respondents),
- An orientation program designed for new teachers (74% of respondents) and
- Observation of experienced teachers teaching their classes (69% of respondents)

Among early-career secondary teachers in 2013 the three most commonly provided forms of assistance were:

- An orientation program designed for new teachers (84% of respondents),
- A designated mentor (provided to 75% of respondents), and
- Observation of experienced teachers teaching their classes (72% of respondents).

For both primary and secondary teachers, all three forms of assistance were rated highly, with 70% to 87% rating the assistance as helpful or very helpful. The most highly rated form of assistance was 'Observation of experienced teachers teaching their classes,' rated as helpful or very helpful by 84% of primary teachers and 81% of secondary teachers.

'Follow-up from your teacher education institution' occurred relatively infrequently (29% of primary and 34% of secondary respondents) and was rated as the least helpful.

Schunk, Aubusson, Buchanan and Russell (2012) observed that in Australia in the last decade the emphasis has changed from requiring graduates to demonstrate their competence to providing resources to help graduates attain a particular standard of teaching. New teacher induction in Australia is primarily the responsibility of each school, with state education departments providing some resources to support the transition (Hudson, Beutel & Hudson, 2009).

Caldwell and Sutton (2010) investigated the characteristics of state induction and mentoring programs in Australia. Programs varied considerably in the time allocated for induction participation and the activities and professional development included in programs. As an example, the VIT runs the *Program for Supporting Provisionally Registered Teachers*, which is an initiative designed to support new teachers during the transition from provisional registration to full registration. According to the Victorian Government Schools Agreement, new teachers should have a 5% reduced teaching load in their first year of teaching to participate in the necessary induction activities required to facilitate their transition into the profession. The VIT program supports school-based induction through the provision of resource materials and seminars targeted at provisionally registered teachers and principals. It also has a strong emphasis on teacher mentoring with experienced teachers helping new teachers move towards full registration.

The *Teacher Mentor Support Program* is a scheme developed and funded by the VIT and the DEECD. It consists of a two-day training program for experienced teachers to develop the skills needed to provide structured support to new teachers. Part of the mentoring responsibility includes helping their mentees to reflect and collect evidence to support an application for full teacher registration that shows teaching practices at the Proficient level of the APST.

The VIT Program for *Supporting Provisionally Registered Teachers* program has been reviewed extensively (e.g. see Ingvarson *et al.*, 2007; Richardson, 2010) and has been modified based on review findings. The most recent evaluation of the 2010 program by Richardson (2011) surveyed over 500 provisionally registered teachers and over 400 mentors. More than 80% of new teacher respondents agreed or strongly agreed that the mentor chosen for them was appropriate. Richardson also noted improvement in the frequency of mentor meetings in the 2010 program evaluation. Furthermore, 77% of new teacher respondents believed that participation in the VIT program had helped them to improve professional knowledge and skills to either a moderate or major extent. Seventy-one percent of teacher respondents reported that completion of the program had improved the likelihood that they would continue their career in teaching to a

moderate or major extent. Richardson (2011) commented that the school culture and expectation were factors that also influenced the induction period for new teacher respondents.

## Summary

The transition from student to new teacher is an important one that must be supported in order to facilitate the development of effective teaching practices. The principles of the APST mirror those reflected in international best practice by conceptualising the induction period as a continuation of the professional development and learning begun in an initial teacher education course. Due to variability in the structure and content of teacher induction programs, it is difficult to evaluate from an evidence-base the features of an effective induction program. However, according to the international literature, best practice principles revolve around programs that:

- are guided by professional standards;
- involve mentoring where mentors are carefully selected for their expertise and receive ongoing training;
- include classroom-based learning opportunities for new teachers;
- provide continuing professional development; and
- are supported through the provision of resources.

More research is also needed about the nature and effectiveness of current standards-based practices during the induction period in Australia. The APST specify the standards that should direct new teachers' professional growth, and their impact can be seen across the states and territories. For instance, the NSW Department of Education's induction guidelines note, 'new scheme teachers must have the support of a supervising teacher to assess their development against the Professional Teaching Standards as they work towards accreditation at Professional Competence with the NSW Institute of Teachers' (Department of Education & Communities, 2014).<sup>7</sup>

However, there is a need for improved methods for evaluating teachers' performance against these standards. There is some evidence of moves to develop these types of assessment in Australia (e.g. see the Deakin ATA; Dixon *et al.*, 2011). In countries with strong quality assurances processes within the teacher education system, standards-based measures are often used as part of the certification or registration process. To match international best practice, Australia would need to develop standards-based performance evaluation tools that can form part of the structure guiding teachers on the knowledge they should have and the skills they should display to meet requirements for full registration to the profession.

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<sup>7</sup><http://www.dec.nsw.gov.au/about-us/careers-centre/school-careers/teaching/your-teaching-career/approved-teachers/information-for-newly-appointed-teachers/induction>

## CHAPTER 5: BENCHMARKING AUSTRALIA'S TEACHER EDUCATION PROGRAMS AGAINST WORLD'S BEST PRACTICE PRINCIPLES

### What is benchmarking?

A *benchmark* is a standard and *benchmarking* means evaluating something in comparison to a standard. For the present purposes, benchmarking is seen as a process of establishing 'best practice' and a benchmark is a standard of performance derived from that process. In other words, benchmarking requires not just a description of what is to be measured (the content of the standard), but also how it is to be measured and a specification of what counts as meeting the standard (setting the standard).

It is not possible at present to apply this strict definition of benchmarking to comparing individual Australian teacher education programs with those in other countries. The kind of reliable and representative data about Australian teacher education practices and outcomes that would make this possible does not exist. There have been some international studies of teacher education programs based on representative samples at national and program levels such as the TEDS-M study conducted by the International Association for the Evaluation of Educational Achievement (IEA) (Tatto, *et al.*, 2012), but so far Australia has not participated.

For the purposes of this report, we decided to use the best practice principles identified in Chapter 2 to 4 as the international benchmark. And we will use the *Accreditation of initial teacher education programs in Australia: Standards and procedures* (AITSL, 2011) as an indicator of what is representative of Australian teacher education programs. This document sets out:

- a) *The APST Standards for Graduate Teachers*: the knowledge, skills and attributes expected of graduates of nationally accredited programs; and
- b) *Australian Program Standards* (APS): the key attributes expected of high-quality initial teacher education programs These include:
  - a. Standard 1 Program outcomes
  - b. Standard 2 Program development
  - c. Standard 3 Program entrants
  - d. Standard 4 Program structure and content
  - e. Standard 5 School partnerships
  - f. Standard 6 Program delivery and resourcing
  - g. Standard 7 Program information and evaluation

### Benchmarking Australian teacher education programs

Our assumption, for the purposes of this chapter, is that if an Australian teacher education program has gained accreditation, it will have met these standards. This in turn assumes that the current process for accrediting teacher education programs in Australia is valid and reliable. To the extent that this assumption is well founded, the APS provide a basis on which to compare Australian teacher education programs with the principles for best practice in the design, delivery and assessment of teacher education.

Although this approach to benchmarking has clear weaknesses, relying as it does on the content of the Australian Program Standards, not evidence of implementation and outcomes, it does indicate that the Australian Program Standards are largely consistent with the fundamental dimensions of effective teacher education programs, as defined by the best practice principles in Chapters 2 to 4.

Chapter 2 also introduced more sophisticated systems for assessing and accrediting teacher education programs and their graduates that are emerging, based on best practice principles such as those identified by Darling-Hammond and others above. One of the best examples of such an effort is the set of standards for accrediting teacher education programs developed by the Council for the

Accreditation of Educator Preparation (CAEP) in the USA.

The standards most commonly used to describe what graduates of these programs should know and be able to do are the standards developed by the Council of Chief State School Officers through its Interstate Teacher Assessment and Support Consortium (InTASC). Space does not permit detailed description of the InTASC teaching standards, but it is clear that, in comparison with the APST, they provide a sounder basis on which to plan and assess teacher education programs and assess graduates of those programs.

### **How well do the current Australian Program Standards match best practice principles in teacher education?**

The best practice principles identified in Chapter 2 will be compared in turn with relevant sections of the APS and available evidence about Australian programs. Some closely inter-related best practice principles are grouped together for the purposes of this discussion. In following the following sections it would be helpful to have access to a detailed version of the APS.

#### **Best practice principles<sup>1</sup> and 2: A coherent, standards-guided program**

1. *Coherence, based on a common, clear vision of good teaching grounded in an understanding of learning, permeates all coursework and clinical experiences.*
2. *Well-defined standards of practice and performance are used to guide and evaluate course work and clinical work.*

There is a clear emphasis in the Australian Program Standards on the importance of program coherence. Standard 4.1 in *The Australian Program Standards* states that 'Program structures must be sequenced coherently to reflect effective connections between theory and practice'. (p. 13)

There are clear indications that Australia is moving toward a standards-guided teacher education system where standards of professional knowledge and practice are used to guide and evaluate course work and clinical work (AITSL, 2014). Most teacher educators in the AITSL survey indicated that they were using the *Australian Professional Standards for Teaching* in discussion with pre-service teachers, in planning content across the program, in developing content for subjects and in developing general coursework assessments.

However, the current Australian Professional Standards for Teaching do not appear to include, as yet, a clear overall guiding vision of quality teaching and learning. What counts as coherence might also be more clearly defined and illustrated. The TEDS-M study (Tatto et al., 2012), for example, included a measure of program coherence based on the following conception:

- Each stage of the program is planned to meet the main needs students have at that stage of their preparation;
- Later units of study in the program build on what was taught in earlier units in the program;
- The program is organized in a way that cover what students need to learn to become an effective teacher;
- The units of study follow a logical sequence of development in terms of content and topics.
- Each of unit of study is clearly designed to prepare students to meet a common set of explicit standard expectations for beginning teachers; and
- There are explicit links between the units of study in the teacher education program.

TEDS-M showed a strong association between program coherence, as defined here, and graduates' evaluations of their preparedness. In another study, MTeach students at the The University of Melbourne also rate their course highly on preparedness (Scott, et a., 2010). The MTeach website shows that every unit of study in the program describes the teaching standards that it is designed to help students meet.

An ACER evaluation in 2004-2005 of the Bachelor of Learning Management (BLM) program at Central Queensland University (CQU (Ingvarson, Beavis, Danielson, Ellis, & Elliott, 2005; Ingvarson, 2006) revealed the advantages of a program guided by teaching standards and a clear model of effective teaching practice. Each unit of study within the program had to justify itself in terms of its contribution to meeting standards for beginning teachers. The BLM program also had a strong school-based component (Smith & Lynch, 2010).

BLM graduates rated the effectiveness of their teacher education program significantly higher on a wide range of measures than did graduates from other teacher education programs in Queensland. BLM graduates also believed they were better prepared for the first year of teaching. The findings were supported by a small classroom observation study of BLM and non-BLM graduates in their first year of teaching, which found that BLM graduates performed at a significantly higher level on a range of teaching standards than non-BLM graduates. A survey of principals in the same study showed that they also rated BLM graduates as more prepared.

BLM graduates reported significantly greater opportunities to link theory to practice, to see models of effective teaching, and to receive feedback about their teaching from university lecturers in the light of teaching standards. The report identifies a number of design features of the BLM course that contributed to the positive results, such as the strong partnership between experienced school teachers and university lecturers.

While the importance of program coherence and standards-guided teacher education is recognized and realized in programs like the MTeach and the BLM, the extent to which these principles are common practice is unclear at present.

### **Best practice principle 3: A strong core curriculum based on professional knowledge**

3. *A strong core curriculum, taught in the context of practice, grounded in knowledge of child and adolescent development, learning in social and cultural contexts, curriculum, assessment and subject-matter pedagogy.*

Standards 4.2 – 4.7 in the APS are consistent with this best practice principle. They specify, for example, that:

- Professional studies in education comprise two-years of full-time study
- Discipline studies – primary programs must include study in each of the learning areas of the primary school curriculum sufficient to equip teachers to teach across the years of primary schooling.
- At least one half of the program must be dedicated to the study of the discipline of each primary learning area and discipline-specific curriculum and pedagogical studies

There is evidence that undergraduate programs for primary specialists in Australia now devote a greater proportion of time to units of study related to the content of the primary curriculum for schools and units related to learning and teaching that content (Ingvarson, et al., 2004). This shift is also consistent with findings from research on the characteristics of effective teacher education programs (Darling-Hammond and Bransford, 2005); that primary programs “must include study in each of the learning areas of the primary curriculum sufficient to equip teachers to teach across the years of the curriculum.”

There is evidence that opportunity to learn subject matter and how to teach it varies significantly across programs in Australia. An ACER report prepared for the Ministerial Council on Education, Employment, Training and Youth Affairs revealed wide diversity of content in teacher education programs and limited evidence that current accreditation methods were influencing the quality of those programs. Some programs for primary teachers, for example, had five units of study in mathematics and teaching mathematics (out of 32) while others had as few as one (Ingvarson, Beavis, Elliott, & Kleinhenz, 2004). No research has been conducted on the effects of this variation



on graduates' knowledge of mathematics and how to teach it across different programs. The same diversity applied to other subjects in the curriculum.

A report prepared for the *National Inquiry into the Teaching of Literacy: Teaching reading* (2005), surveyed 34 universities that prepared primary teachers. Responses to the national survey indicated that in almost all the nominated courses, less than 10% of time in compulsory subjects/units was devoted to preparing student teachers to teach reading. The same report indicates that teacher educators were concerned about the literacy competency of student teachers and felt the many students lacked the literacy skills required to be effective teachers of reading.

Two recent Australian studies indicate the central importance of content-focused teacher education; of ensuring that students have extensive opportunities to gain deep pedagogical understanding of the content they will be expected to teach, consistent with international research.

An ACER study investigated the characteristics of effective initial teacher education programs in Victoria, as reported by teachers who have just finished their first year of teaching (Ingvarson, Kleinhenz, Khoo, & Wilkinson, 2007). The survey revealed significant differences between programs in the extent to which they had a 'content' focus'.

Teachers who reported that they had been well prepared to meet the demands of their first year of teaching were more likely to have completed programs that gave them:

- deep understanding of what they were expected to help students learn and how students learned it;
- skill in diagnosing students' existing levels of understanding of the content to be taught;
- training in planning activities and selecting activities that would promote further development; and
- methods of assessing the extent to which development had taken place.

Similar findings emerged from an evaluation of the Bachelor of Learning Management (BLM) program at Central Queensland University (Ingvarson, Beavis, Danielson, Ellis, & Elliott, 2005; Ingvarson, 2006), which compared BLM graduates with graduates from other Queensland universities.

The level to which Australian teacher educators have a common understanding of the knowledge base expected of graduating teachers in each specialist field of teaching and the extent to which it matches the standards expected of graduating teachers in high-achieving countries is unknown. Although the Australian Professional Standards for Teachers emphasise that graduates should know the content they will be expected to teach and how to teach it, which is consistent with the research on effective teaching and teacher education, we know little about the actual or relative levels of knowledge graduates from different programs have about the subjects they will be expected to teach or how to teach it.

In 2013, a Senate Education, Employment and Workplace Relations References Committee report, *Teaching and learning – maximising our investment in Australian schools*, recommended that audits of teacher education programs be conducted to establish whether graduating primary school teachers are equipped to teach English Language, Mathematics and Numeracy to students. So far, no action has been taken to implement these recommendations.

At this stage, Program Standards 2 and 4 do not have the depth that can be found in some of the best examples of accreditation standards internationally, such as those developed by CAEP in the USA in collaboration with professional subject associations and researchers. This reflects the lack of depth in the APST. The APST and the APS need more specificity about pedagogical content knowledge in each of the curriculum areas and the knowledge and skills beginning teachers should have acquired in the assessment of student learning.

It may be worth considering whether Australian teacher educators should embark on a collaborative project to develop a *National Curriculum Project for Teacher Education*. National clarity and consistency about what future teachers should have the opportunity to learn, as well as what graduates should know and be able to do, would be consistent with the characteristics of a profession of teaching.

#### **Best practice principle 4: Strong links between theory and practice**

4. *An inquiry approach that connects theory and practice, including regular use of case methods, analyses of teaching and learning, and teacher research applying learning to real problems of practice and developing teachers as reflective practitioners.*

The APS makes several references to the importance of connections between theory and practice. Standard 2 states that programs should take account of authoritative educational research and current professional expert knowledge. Standard 4 mentions that programs should include “discipline and discipline-specific curriculum and pedagogical studies”. This is consistent with research on teacher characteristics that link to student learning outcomes.

However, this is the extent to which the APS provides any specification about ‘theory’, or research, or ‘practice’. Or what might lead to, or illustrate, strong connections between the two. Again, there is a marked contrast between the standards for accrediting teacher education programs in Australia and the depth of those developed by CAEP in the USA (e.g. CAEP, 2013).

The 2004 mapping study conducted for MCEETYA by ACER (Ingvarson, *et al.*, 2004) asked providers about the methods they used to build links between the theoretical and the practical components of their programs. Responses were received from 38 university providers and covered 102 individual pre-service teacher education courses, including undergraduate, postgraduate and double degree courses.

Respondents revealed a wide range of interpretations of the question. The most commonly cited method was through assignments, especially assignments that students undertake as part of the practicum, such as preparing a portfolio entry. Some respondents seemed to believe that building links between theory and practice was mainly a question of increasing the amount or length of school based experience, as if “experience” in itself was sufficient.

Respondents generally, more often primary teacher educators, interpreted this question pragmatically as referring to tasks that enabled students to undertake “authentic” teacher type work, rather than the incorporation of theory into their knowledge and practice. Others held a constructivist perspective that encouraged students to build their personal theory and philosophy of teaching through learning how to analyse and evaluate their practice. All respondents thought that current methods for linking theory to practice were working well, or very well.

An evaluation of the *MTeach* program at the University of Melbourne reported that “the extended placement in schools offered by the program allowed students to move more seamlessly between the theory learned at university and opportunities to implement this in practice during their school experience. It also offered the opportunity to discuss and learn from school experience as it was happening (rather than at the end of a block round). The links between theory and practice were well supported by Teaching Fellows (and to a lesser extent Clinical Specialists), but least by classroom teachers who are often not well-informed about the intent, structure or content of the *MTeach*. (Scott *et al.*, 2010, p. 5)

Teaching standards aim to build better links between theory and practice. Chapter 2 in this report provides a brief account of how recent research, for example in teaching fields such as reading, mathematics and science is providing a stronger theoretical base for what beginning teachers should learn and be able to do. The main purpose of writing teaching standards is to synthesise this research and its implications for practice, based on collaboration between researchers, professional

associations and teacher educators. A good example of such a collaborative process is that used by the Council of Chief State School Officers (CCSSO) in the USA to develop the Interstate Teacher Assessment and Support Consortium (InTASC standards

However, there does not appear to be a similar mechanism in Australia whereby the profession can begin to organise and codify this knowledge and make it generally available to teacher educators. This would be one of the main tasks for a *National Curriculum Project for Teacher Education*.

Recent international projects like the Mapping Educational Specialist KnowHow (MESH)<sup>8</sup> are attempting to bring research together in a more accessible form for teachers, as is taking place with benefit in the medical and health professions through collaborations such as the Map of Medical Health guides, the Cochrane Collaboration and the National Institute for Health and Clinical Excellence (NICE).

MESH Guides provide a database of subject-specific research-based knowledge about the teaching and learning of topics across the curricular disciplines (e.g. Teaching writing to reluctant learners). The Guides are managed and quality assured in the same way journals are through specialist editorial boards. For example, the draft MESH guide for spelling on the MESH website states that:

*The primary goal of the MESH Spelling site developers has been to bring together insights from the past 40 years of research into spelling, and to present these in ways that are bite-sized, clear and intelligible to a non-expert.*

An Australian project along these lines, assembling this kind of information for each of the various specialist fields of teaching, would be a valuable resource for teacher educators and future teachers preparing evidence of how they are integrating research into their practice.

#### **Best practice principles 5 and 6: Extensive clinical experience based on genuine partnerships with schools**

5. *Extensive, connected clinical experiences are carefully developed to support the ideas and practices presented in simultaneous, closely interwoven course work.*
6. *Strong school-university partnerships that develop common knowledge and shared beliefs among school- and university-based faculty and allow candidates to learn to teach in professional communities modelling state-of-the-art practice for diverse learners and collegial learning for adults.*

Both the APS and the best practice principles emphasise the importance of school/university partnerships and school experience. Requirements for students' professional experiences during their teacher training are set out in the Australian Program Standards (AITSL, 2011a). Standard 5 in the APS, *School Partnerships*, Standard 5, specifies a minimum of 80 days of supervised practice in four-year undergraduate programs and 60 days in two-year graduate programs. It emphasises the need for enduring partnerships, extensive time in schools, well qualified supervising teachers, and consistency between school and university staff in the application of standards to the assessment of student performance.

Program providers are required to provide information to schools about the length, elements and expectations of students' professional placement, to work with schools to provide students with access to teaching a range of year levels and across a variety of contexts, to ensure the suitability and expertise of supervising teachers, and to have mechanisms for identifying and remediating students at risk of unsatisfactory performance during professional experience. Satisfactory completion of

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<sup>8</sup> [www.meshguides.org](http://www.meshguides.org)

professional experience requirements against a formal assessment at the Graduate level of the APST is a precondition for graduation from the teacher education course.

The mapping study conducted by ACER in 2004 for MCEETYA indicated that professional experience and the practicum were the areas of greatest concern to providers. Most respondents indicated that graduate quality and competence would be enhanced by longer experiences in schools, experiences that were more embedded in school communities and included closer mentoring by school and university staff. However, most respondents indicated it was difficult to organize, fund and manage quality professional experiences and that the contributions of all stakeholders would be enriched by closer relations between schools and universities.

Of greatest concern was the high cost of running professional experience programs (especially the administration costs, payment of teachers and schools, and payment of supervisors), difficulties in providing adequate supervision and mentoring of students, the difficulty in finding enough schools and classes willing to host students, and schools' reluctance to participate as partners in the development of new teaching professionals.

These concerns largely remain. The problem appears not to be lack of knowledge about how to provide quality school experience, or motivation. Our review indicates a clear trend toward better quality professional experiences in schools. Chapter 3 indicates that several Australian providers are building more genuine partnerships with schools. It describes how several Australian programs share those characteristics. Recognition is growing that future teachers need to be placed in situations where they are active learners in the process of learning how to teach – that they should be placed in situations where they have to learn how to think like a teacher.

ACER conducted an evaluation of the School Centres for Teaching Excellence (SCTE) Initiative in Victoria over 2012-2013. The key feature of the SCTE initiative was the establishment by the Victorian Department of Education and Early Childhood Development (DEECD) of seven SCTE initiatives in 2011. A feature of all seven centres was close collaboration between universities focused on providing high-quality pre-service teacher education, professional learning and research opportunities. Each centre linked a university with a group of schools, in an arrangement that allowed pre-service teachers to spend extended periods in schools.

Graduates from SCTE programs were surveyed half way through their first and second years as teachers, together with graduates from other programs in the same set of universities. SCTE graduates rated their teacher preparation more effective in relation to five of the seven AITSL Standards. For the remaining two Standards (the difference was in the same direction, although it fell short of statistical significance).

The SCTE respondents completed teacher preparation programs in the same universities at the same time as the non-SCTE respondents. In the light of these data, it seems that there were clear benefits to graduates from their participation in the SCTE programs, the key feature of which was close and continuing collaboration between university staff and school staff, and extended periods in those schools. These benefits were most apparent in relation to the extent to which, with the benefit of experience, they believe their programs provided them with the knowledge, understanding and experiences that they needed in order to attain the relevant AITSL Standards.

A major future challenge will be how to implement similarly high quality school experience arrangements for all student teachers, especially in a context where providers are having difficulty finding school placements and suitably qualified supervising teachers. The conditions are not yet in place that would enable best practice to become common practice. It is disturbing to hear that some providers appear to be placing the burden of finding school placements onto students themselves.

The BLM at Central Queensland University and Melbourne MTeach provide examples of some of the genuinely authentic partnerships emerging between providers and schools, which is reflected in the way funding and staffing resources are allocated to schools and in the way school staff believe they have a strong voice in program planning.

Melbourne MTeach model, for example, includes 40 'Base Schools' and Early Childhood Networks across Early Childhood, Primary, and Secondary. Each Base School/Centre connects to between 4-10 Partnership Schools /Centres. In total over 300 schools and early childhood centres are participating. Each base school has a half time Teaching Fellow on staff, funded by the University. Each Base School Network includes about 25 candidates and 25 mentor teachers. Candidates spend 3 days at University and 2 days at the School/Centre throughout the program, in addition to 'block placements' of 2-3 weeks each semester

However, the present Australian Program Standard 5 remains at a general level. Perhaps as result, the nature and quality of the school experience varies widely across programs. The APS could benefit from more detail about the nature and quality clinical experiences, such as that provided in the CAEP standards (See Appendix 1). The House of Representatives Standing Committee on Education and Vocational Training (2007) reported that there was little agreement on the core features of a highly effective professional experience.

Some possible indicators of effective professional experience and quality supervision might include the following:

- Supervising teachers are accomplished teachers
- There are opportunities to observe models of the theories and strategies students are learning in university courses and opportunities to practice these skills with feedback
- Supervising teachers have a clear idea of what the university requires students to practice during the practicum
- Supervising teachers use the standards provided by the university when reviewing lessons
- Assessment tasks ask students to show how they had applied ideas they were learning on courses
- Assessment tasks ask students to collect and analyse evidence about pupil learning as a result of their teaching methods and test out findings from educational research about difficulties pupils have in learning?

### **Best practice principle 7: Confronting prior beliefs and assumptions**

*7. Explicit strategies help students to (1) confront their own deep-seated beliefs and assumptions about learning and students, and (2) learn about the experiences of people different from themselves.*

While the APS do not specifically address this principle, the APST gives it strong emphasis in Standard 1, *Knowledge of students and how they learn*. There is a pervasive emphasis in the APST on activities that build graduate capacity to analyse, evaluate and reflect on their beliefs and practices. Reflective journals and portfolios are widely used for this purpose. The APST also emphasise the need to provide future teachers with "teaching strategies that are responsive to the learning strengths and needs of students from diverse linguistic, cultural religious and socio-economic backgrounds".

No studies could be found reviewing the strategies that teacher educators are currently using for these purposes, but this would seem to be another topic that might be addressed in developing a national curriculum for teacher education.

### **Best practice principle 8: Standards-based assessment of graduate outcomes**

8. *Assessment based on professional standards that evaluates teaching through demonstration of critical skills and abilities using performance assessments and portfolios that support the development of 'adaptive expertise' (Darling-Hammond, 2006, p. 276).*

Standard 1 in the APS makes it clear that accreditation of a program should be based on evidence demonstrating that graduates of that program meet the Graduate Teacher Standards. This emphasis on outcomes is consistent with the best practice principle and international trends in accreditation. Chapter 2 provided some examples of more sophisticated and authentic standards-based methods of assessing professional knowledge and performance, such as Praxis and edTPA. In Australia, an example of this type of tool is the Deakin Authentic Teacher Assessment (Dixon, Mayer, Gallant & Allard, 2011). Another is the Clinical Praxis Exam developed as part of the MTeach program at the University Of Melbourne

While Australian teacher education providers are using a wide variety of methods for assessing student teachers, including classroom observation and portfolio entries, the ways in which, and the extent to which, those programs are meeting Program Standard 1 are unclear. This may become clearer as more current programs come up for reaccreditation. A recent study in Victoria suggested that there was often little information about the criteria for summative assessment of professional experiences and little connection between developmental feedback and summative assessments. Assessments were often perceived as subjective, disconnected from the university and not well matched to the practices of a beginning teacher (Ure, 2009).

As far as we are aware, there are no guidelines about how to meet Standard 1 in the APS, or what counts as meeting it. Similarly, Standard 2 in the APST states that graduates should “demonstrate knowledge and understanding of the concepts, substance and structure of the content and teaching strategies of the teaching area”. However, no specification of what it means for each field of teaching is provided (e.g. what should a beginning junior primary teacher know about number and how to teach it?). In fact, Standard 2 it is not as yet a standard in the true sense of the term as it cannot be applied; there are no procedures in place for determining what counts as meeting the standard.

There have been a few studies of knowledge outcomes of teacher education programs. Teaching Australia commissioned a report, the *Impact of Teacher Education on Knowledge of Literacy and Mathematics Teaching* (Louden, Heldsinger, House, Humphry, & Fitzgerald, 2010). Graduates from a variety of teacher education program types from 15 universities were surveyed about their perceptions of their preparation in early years literacy and middle years mathematics teaching, and their knowledge of literacy or mathematics teaching as measured by capacity to analyse videos and written texts of student reading, writing and mathematics. Knowledge of literacy teaching was ‘substantially greater’ among students in Master of Teaching programs. Similar results were found for mathematics. The authors indicate caution, as response rates were low, but venture to say:

*The results of this study have reinforced the importance of recruiting well qualified entrants to the teaching profession...students who entered teaching on the basis of a completed degree, or who entered the more demanding postgraduate option of a Master of Teaching rather than a Graduate Diploma, were more likely to be able to analyse student work and thus scored well on the teachers' knowledge trait (Louden et al., 2010, p. 11).*

A team of researchers from several universities has been developing a Test of Mathematics Teaching Knowledge that teacher education providers might use to monitor their mathematics programs (Beswick, Callingham, Watson, 2011; Callingham et al., 2011). So far, only a small number of studies have gathered data about the knowledge of graduating teachers, few have gathered data in a systematic way about their performance in relation to professional standards for teachers.

While these two studies gathered evidence about knowledge outcomes, they did not compare programs in terms of these outcomes. Although research demonstrates it is pivotal to effective teaching, there are few studies that provide reliable information about depth or relative levels of knowledge that graduates from different programs have about the subjects they will be expected to teach.

A major collaborative research and development initiative to develop common, valid and reliable standards-based measures of expected professional knowledge and performance would seem worth considering. It will be necessary if Program Standard 1 is to be implementable. Chapter 4 describes developments in Australia toward a nationally consistent system for assessing teachers for registration that might be part of such an initiative.

We do not know which Australian programs are more effective. Teacher education in Australia operates in a relatively evidence-free zone. This is not to imply any particular judgment about the quality of Australia's teacher education system. We simply do not have the evidence that would enable Australia's programs to be benchmarked against each other, or internationally in terms of their effectiveness.

Australia's teacher education programs turn out approximately 18,000 graduate teachers each year. A number of questions might reasonably be asked about the outcomes of these programs, such as the following:

- What level of understanding should future teachers have about the subjects they will be expected to teach and what levels of understanding do students from different programs actually attain?
- What should graduates know about recent research on how best to help students learn those subjects and to what extent do graduates from different programs possess that knowledge?
- What should graduates know about how to assess that learning?
- What teaching skills should graduates have mastered? Which programs are more successful in developing those skills and why?
- What methods are currently used to assess achievement of these skills and capabilities? How valid and reliable are they?

As reasonable as such questions might be, we have few reliable answers to these questions at present. Australia has not developed the instruments that would enable these questions to be addressed; i.e. to know the relative effectiveness of its teacher education programs. If we had to rely on Australian research, it would not be possible to derive best practice principles for designing effective teacher education programs.

## **Summary**

This benchmarking exercise has indicated that the basic attributes of Australian teacher education programs, as reflected in the APS, and the best practice principles for the design, delivery and assessment of teacher education programs, have much in common. Apart from some differences in emphasis, the APS are consistent with what the research identifies as characteristics of effective teacher education programs. The underlying dimensions of a strong teacher education system are present in the APS.

Our review also found evidence that there are teacher education programs in Australia that match, or perhaps more than match, the best practice principles. They exemplify best practice. Some Australian providers, in fact, are already benchmarking their programs against highly regarded programs in other countries – a process that should be encouraged. There are also programs, such as online programs, where it is difficult to believe that these best practice principles can be met, or how they can meet rigorously imposed accreditation standards.

The challenge is to ensure that best practice becomes common practice; that the accreditation process promotes best practice and is a valid and reliable indicator of best practice. This review has indicated a number of areas where both the APS and the APST need more specificity, especially about what counts as meeting the standards. At present, there appears to be no evidence that current accreditation processes are improving the quality and outcomes of programs.

Our review has indicated how little we know about the relative effectiveness of teacher education programs in Australia, not only with respect to each other, but internationally. We have few reliable answers to questions about the content, processes or outcomes of teacher education at present. Australia has not developed the instruments that would enable these questions to be addressed; i.e. to know the relative effectiveness its teacher education programs. This is an under-researched area.

Our review indicates that consideration might be given to a project that would build a sound, common National Curriculum for Teacher Education, closely geared to ensuring quality opportunities for graduates to meet knowledge and performance standards for effective teaching.

The fundamental requirement for more useful research into teacher education is the development of valid and reliable measures of what graduates know and can do in relation to standards for effective teaching. It is not possible to assess and accredit teacher education programs reliably by relying on inspection of the content of teacher education programs, or on graduates' perceptions of their preparedness. This needs to be seen as a high priority. Without such measures, the capacity to improve Australia's teacher education system will be limited. The Australian Professional Standards for Teachers provide a starting point, however they will need to be described in more detail and elaborated for different fields of teaching before they will provide a useful basis for assessing what graduates know and can do.

Given the importance of high-quality teacher education for Australia's education system and its aspirations to rejoin high-achieving countries, it is surprising to find that so little research funding has been devoted to identifying best practice and the distinguishing features of effective Australian teacher education programs. What international research does tell us is that graduates from teacher education programs in countries that rank higher on tests of school student achievement in mathematics, for example, also score significantly higher on tests of mathematical content and pedagogical knowledge (Ingvarson & Schwille, 2013). It also showed that a graduate teachers' level of mathematical knowledge and knowledge of maths pedagogy at graduation related as much, if not more so, to their achievement in mathematics *prior to entry* into teacher education as it did to their learning during a program.



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## CHAPTER 6: LESSONS FROM TEACHER EDUCATION SYSTEMS IN HIGH-ACHIEVING COUNTRIES

This chapter moves focus from the individual program level to the level of the national teacher education system within which program providers operate. This is important because policies and practices at the system level, such as the nature and degree of regulation, play a major role in shaping the general quality of a nation's teacher education programs.

This chapter restricts its review to the characteristics of teacher education systems in countries that perform relatively well on international tests of student achievement, principally the OECD's PISA program, such as Finland, Canada, Korea, Japan, Singapore, Chinese Taipei, and countries that have shown substantial improvement in recent years, such as Germany and Chile. The chapter also includes case studies of five systems: Finland, Chinese Taipei, Singapore, Canada and Germany.

### System policies that promote best practice teacher education programs

The evidence indicates that high-performing education systems promote best practice in teacher education programs by a range of inter-connected policies and procedures. These are outlined below.

#### *Investing in education and attracting high-quality applicants*

Research indicates a clear relationship between the academic quality of applicants for teacher education programs and the level of teachers' salaries relative to other professions. Researchers at the London School of Economics in England showed that the number of high quality graduates who choose teaching moves up and down as relative salaries for teachers move up and down (Chevalier, Dolton & McIntosh, 2007).

Recent research indicates a clear correlation between investment in teachers' salaries and PISA performance. High performing countries focus educational policy directly on recruiting academically successful students and treating teachers as professionals. In their study of teacher pay and pupil performance (using PISA scores) across 39 countries, Chevalier *et al.* (2007) found that there was a 'highly significant and positive effect of teacher wages on pupil test scores' (p. 41).

In a study across 30 countries Akiba, Cui, Shimizu, and Buhang (2012) showed it is not the salaries for beginning teachers that matter so much; or the salaries at the top of the incremental scale. *It is the salaries of **experienced** teachers relative to other professions that distinguish countries with higher student achievement.* And research shows that this is the factor that is turning potentially good teachers away from choosing teaching in Australia (DEST, 2006).

In another cross-country study, Carnoy, Beteille, Brodziak, Loyalka, & Luschei (2009) reported that:

*...even when we control for other factors that we know relate to higher test scores, students in countries where teachers are paid more relative to males' salaries in competing professions do better on mathematics knowledge tests (p. 45).*

Overall, the data suggest that nations wanting to build a first-class teaching force need to be prepared to pay enough to take compensation 'off the table' as a major consideration for talented young people making career decisions, but need not pay at the top of the professional scale.

In Singapore, in 2010, the school education budget was approximately 3.6% of GDP and 20% of total government expenditure, second only to defence (OECD, 2011). Korea has also invested heavily in education since WW2, particularly in terms of offering high salaries and attractive conditions for teachers. Teacher salaries in Singapore and Korea are amongst the highest in the world. 'The evidence indicates that these policies have created a strong incentive among abler graduates in those countries to join the teaching profession' (Ingvarson *et al.*, 2013, p. 155). '...in those countries where [entrance to] teaching is competitive, the salaries are as well' (Tatto, Krajcik & Pippin, 2013, p.

34). In Singapore and Taipei, teaching is promoted as a highly attractive, very well paid career. Key policies include providing job security, pensions and other benefits plus emphasis on teacher professional development to increase confidence and job satisfaction. The work satisfaction of teachers in Chinese Taipei is among the highest across all careers. Cultural and social norms reinforce the notion of teaching as a respected and highly attractive profession in most high-performing countries, for example Singapore, Chinese Taipei, Germany and Finland.

Good working conditions for teachers and clear career paths also make the profession attractive to able potential candidates. In Finland, Shanghai, and some other high-performing countries, teachers spend less time in face-to-face instruction – about 10-12 hours per week in contrast to Australia's 20 hours (Jensen, Hunter, Sonneman, & Burns, 2012). This creates more time for professional collaboration, planning and monitoring student achievement (Barber & Mourshed, 2007; Morris & Patterson, 2013; OECD, 2010a; 2010b). The benefits are at least twofold: manageable workloads attract better teachers, and school students benefit from increased teacher collaboration, better planning and monitoring. These benefits only accrue in systems where there is an understanding that teachers' work-time includes duties that support their face-to-face instruction but are not limited to it.

Most high-performing countries provide secure and rewarding career paths that attract people of high ability to a career in teaching. In Singapore, career paths are clear, well remunerated and matched to teachers' interests, that is, master teacher, curriculum developer or school leader. Regular teacher evaluations that focus on improvement guide teachers to follow the paths that are best for them. Australia's career structures based on progression along a salary scale on the basis of years of service do not attract high performers (DEST, 2003; 2006). Obviously, too, the prospect of working in sub-standard, low-status physical working spaces, like many that are still all too common in Australian government schools, is a major disincentive for any person considering a teaching career. In high-performing countries, the school environment is deliberately designed to be attractive and friendly to students and staff. Funding is available to ensure this (Schwartz & Mehta, 2013).

Ingersoll (2007) points out that there is no point in lifting entry requirements for teacher education courses without ensuring that teachers' salaries and working conditions are commensurate to those of other professions competing for similar graduates. As pay and conditions improve, a critical mass of high-calibre professionals emerges. This creates an incentive in itself that attracts potential candidates. High-calibre people want to be part of a respected professional cohort with colleagues of at least equally high calibre. This has implications for policies that govern the selection and registration of teachers and the accreditation of programs.

***Having rigorous, well-designed and managed policies and processes for selecting people of the highest calibre to train as teachers***

'The top-performing systems we studied recruit their teachers from the top third of each cohort graduating from their school system: the top 5% in South Korea, the top 10% in Finland, and the top 30% in Singapore and Hong Kong' (Barber & Mourshed, 2007, p. 16). 'The recruitment and selection of highly qualified students for teacher education is the most common strategy used by those systems with high quality assurance' (Tatto *et al.*, 2013, p. 34).

The present review found that all high-performing education systems recruit their pre-service teachers from the ablest students. Some (e.g. Japan) also 'backload' their quality assurance requirements by requiring that teachers successfully complete rigorous induction programs before their teaching position becomes a permanent one (Wang *et al.*, 2009, in Ingvarson *et al.*, 2013 p.154). In Canada, admission requirements are decided by individual teacher training institutions, but they all select trainees from the top 30% of cohorts, and prospective pre-service teachers must have high Grade Point Averages to gain entry to teacher training (Mehta & Schwartz, 2011; Morris & Patterson, 2013). In Chinese Taipei, the Teacher Education Act stipulates that students must be

enrolled in their second or higher year of university, or enrolled as masters or doctoral students before they can be admitted to a teacher education program. All applicants have to pass the national university entrance examination, which has mathematics as a required test subject (Ingvarson, *et al.*, p. 175). In Finland, entry to teacher education is highly selective. In 2010, more than 6600 applicants competed for 600 available places in pre-service education courses. In 2011–2012, nearly 2400 applicants competed for the 120 places in the Faculty of Education at the University of Helsinki (Sahlberg, 2011b).

In addition to insisting on high academic achievement in prospective teachers, high-performing countries are increasingly using other measures to assess a person's suitability for a career in teaching. Singapore has implemented a single, state-wide selection process for pre-service teachers that is managed jointly by the Human Resources Department of the Ministry of Education and the National Institute of Education (the nation's only teacher training institution) (Barber & Mourshed, 2007). Marketing strategies linked to recruitment attract able secondary school graduates, who are then screened so that only those with suitable attributes (such as communication skills) from the top third of secondary school graduates are accepted (Barber & Mourshed, 2007).

### ***Employing effective quality assurance policies and procedures***

According to the Oxford Dictionary, *Quality Assurance* refers to, 'The maintenance of a desired level of quality in a service or product, especially by means of attention to every stage of the process of delivery or production'. Effective teacher education programs are characterised by strong quality-assurance processes. These may be within education faculties, across whole universities or both. Self-evaluation generally plays a major role.

In Japan, each teacher-training institution must conduct a self-evaluation prior to the accreditation process that takes place every seven years. External accreditations are conducted by the Japan Institution for Higher Education Evaluation (Tatto *et al.*, 2013). Under the Teacher Education Act of 2002 and the Teacher enforcement Rules of 1995, Chinese Taipei has clear quality control mechanisms at every stage of teacher education, from selection through to certification.

Hong Kong and South Korea employ accreditation practices similar to those of Japan. In Hong Kong, the self-evaluation must include feedback from staff, students and past external examiners (Tatto *et al.*, 2013). In South Korea, financial support and administrative decisions are tied to the evaluations, which include a site evaluation conducted by a team from the Ministry of Education, Science and Technology (MEST) (Tatto *et al.*, 2013).

The National Institute of Education (NIE) is the sole provider of teacher-preparation courses in Singapore. It emphasises that improvement is the chief goal of the evaluations that are conducted in accreditation processes. The evaluations consider goals and interests, inputs to achieve the goals, including process, and product, matching data to outcomes. A feature of the quality assurance mechanisms in Singapore is that they rely on close cooperation between the Ministry of Education (MOE), the NIE and the schools, and strong feedback mechanisms are in place.

Finland has no state-directed accreditation system. The Finnish Higher Education Evaluation Council, an independent body, conducts evaluations. Processes are highly consultative, involve a wide selection of stakeholders and invite an international perspective by involving foreign education experts.

In most Canadian provinces, mechanisms for ensuring the quality of teacher education are developed solely by Ministries of Education. However, Ontario and British Columbia provide interesting examples of professional, as opposed to bureaucratic, regulation that is similar to self-governing occupations/professions like law, engineering and medicine. In these states, Colleges of Teaching provide certification to graduates of teacher education programs they have accredited.

An important aspect of ensuring the quality of those who become registered/accredited as teachers is to employ ‘filters’ at different points before people are fully admitted to practice. High-performing education systems have rigorous ‘filters’ at different stages, particularly at entry to teacher education programs (see Figure 1). This table shows that Korea and Japan have a large number of high-stakes filters along the selection, teacher education and development pipeline. The filters contribute to outcomes such as the fact that over 90% of Grade 8 teachers in Japan and Korea have teachers who majored in mathematics compared with only 61% in the US.

**Figure 1: Filters Used Along the Teacher Education and Development Pipeline**

|                      | Entry to teacher education program | Evaluation of practical experience requirement | Exit from teacher education program | Certification | Hiring | Evaluation of induction period | Evaluation of professional development | Evaluation of probation period (for tenure) |
|----------------------|------------------------------------|--|-------------------------------------|---------------|--------|--------------------------------|--|---|
| <b>Australia</b>     | Medium                             | Medium   | High                                | Medium        | Low    | Low                            | Low                                    | Medium                                      |
| <b>England</b>       | Low                                | High   | Low                                 | High          | Low    | Low                            | Low                                    | Medium                                      |
| <b>Hong Kong</b>     | Medium                             | Medium   | Low                                 | Low           | Low    | Low                            | Medium                                 | High  |
| <b>Japan</b>         | High                               | High   | Low                                 | Low           | Medium | Medium                         | High                                   | High  |
| <b>Korea</b>         | High                               | Medium   | High                                | Low           | High   | Low                            | High                                   | Low   |
| <b>Netherlands</b>   | High                               | High   | Medium                              | Low           | Low    | Low                            | Low                                    | Medium                                      |
| <b>Singapore</b>     | High                               | Medium   | High                                | Low           | Medium | Medium                         | Low                                    | Low   |
| <b>United States</b> | Medium                             | Low  | Medium                              | High          | Low    | Low                            | Low                                    | Low   |

High = High-Stakes                      Medium = Medium-Stakes                      Low = Low- or no-Stakes

Source: Wang, Coleman, Coley, & Phelps (2003)

### ***Limiting the number of places in teacher training to match demand***

In Singapore, Finland and Chinese Taipei, the number of places in teacher training is limited by projections of demand for new teacher recruits (Barber & Mourshed, 2007). (England also ensures a close match between supply and demand through its system for funding teacher education.) In Chinese Taipei, in 2005 and 2006, the Education Review Committee decided that, following a decrease in demand for teachers, admission quotas would be adjusted so that some universities would have to reduce their numbers of student places in education and others would be forced to discontinue their programs altogether. In Finland, the number of teacher training places is capped according to workforce requirements.

‘Open’ or relaxed entry to teacher education programs and delaying assessment until graduation can result in significant wastage and higher teacher education costs. In Australia, the Committee for the Review of Teaching and Teacher Education (2003) found that fewer than 50% of teaching graduates gained employment as teachers. In Singapore, almost all people who train as teachers gain employment in teaching. (This is largely due to the historically strong link between the MOE and NIE as the single teacher training institution.)

### ***Working in partnership with schools to train teachers***

Most high-performing school systems work with specially-designated schools to train teachers. In Finland, all eight teacher education institutions work in partnership with ‘training schools’. Teachers in these schools have higher status and are paid more to teach there. Teacher-training schools exist for all levels of schooling. They may also include the pre-primary level (Tatto *et al.*, 2013). In Chinese Taipei, Singapore, Germany and other high-performing or improving education systems, university and school teaching staff cooperate in mentoring, supervising and assessing pre-service teachers in designated schools.

### **Characteristics of effective teacher education programs in high-performing education systems**

Teacher education programs are, necessarily, affected by the quality of students who undertake courses, as Barber and Mourshed (2007, p. 18) point out:

*As the quality of people on the courses begins to drop, so does the quality of the courses themselves, because the quality of any classroom experience is highly dependent on the quality of the people in the classroom.*

The syllabi analysis of pre-service education programs used in TEDS-M illustrates international variation in the opportunities to learn provided to future teachers and its consequences at the point in which future teachers are declared ready to teach by their programs (Ingvarson *et al.*, 2013).

Pre-service teacher education programs in high-performing countries have the following characteristics:

#### ***They give maximum opportunities for mastery of subject content***

In Finland, to be qualified to be a subject teacher in a comprehensive school (Years 7–9), a teacher must have completed a master’s degree that includes 35 study weeks in a subject that is taught in comprehensive schools plus 35 study weeks of pedagogical studies. To be a qualified subject teacher in the upper secondary school, a person must have completed a master’s degree that includes at least 70 study weeks in one subject that is taught in the upper secondary school and at least 35 weeks in other possible teaching subjects plus at least 35 weeks of pedagogical studies (Sahlberg, 2011b). Students usually first study a particular subject in the relevant university faculty and after a required period of study they may apply for subject teacher education. At some universities students may apply directly for subject teacher education and in those cases education is provided in co-operation between the education faculty, other relevant university faculties and teacher training schools. The teacher education faculty is responsible for providing pedagogical studies and the other faculties are responsible for content studies in the teaching subjects. The studies are taken in parallel over a period of 5–6 years. In Singapore, all teacher education candidates are required to complete core courses in subject knowledge (primary only), and academic studies (degree only).

In Shanghai, up to 90% of the teacher preparation course is devoted to the study of the subject(s) the prospective teacher will teach (Cheng, 2011).

Canada, Chinese Taipei, Singapore and Germany require all graduates who intend to teach mathematics in a secondary school to have a first degree in mathematics or successful completion of a designated mathematics course at university level or the successful completion of a national examination to enter university with mathematics as a required subject.

Singapore requires primary school teachers to have graduated from secondary school with a mathematics component. Chinese Taipei has a requirement for primary teachers to have one year of tertiary-level studies including mathematics and to have passed a national examination to enter university with mathematics as a required subject (Ingvarson *et al.*, 2013).

Several studies have shown that teacher education in mathematics (as measured by a university major in mathematics or mathematics education) is consistently related to students' proficiency in mathematics. Others have shown links between training in mathematics-specific pedagogy and student learning in mathematics. Others have shown that mathematics-specific training made a difference to teachers' beliefs and ability to encourage deeper mathematical reasoning in students (see Tatto *et al.*, 2013, p. 158).

### ***They use research and enquiry as a way to develop an informed, reflective, stance on teaching***

Teacher education programs in high-achieving countries are strongly research-and evidence-based. Education faculties and students are continually building research programs and contributing to the professional knowledge base. In Finland, every student must complete a master's thesis that presents original research in either education or the subject(s) they intend to teach.

Providers of these programs integrate theory and practice through building close relationships between universities and schools, and ensuring opportunities for student teachers to undertake all of their practicum in those schools under the supervision of expert mentors/supervising teachers.

In Finland, student teachers practise teaching in the university affiliated training schools under the close supervision of 'master' teachers. These schools are 'model' schools where new knowledge and teaching practices are researched and developed in collaboration between student-teachers, school teachers and university staff.

A recent study (AITSL, 2014), based on case studies and literature from around the world, identified the following 'four broad success factors' for the implementation of effective teacher education:

1. *A clear vision of effective teaching* that informs the entire program, provides a basis for prioritisation and ensures that all those involved in supporting pre-service teachers present a coherent message.
2. *Integrating theory and practice*, so that professional experience is central to the program
3. Highly skilled and well supported supervising teachers
4. Sustainable, scalable partnerships

These features are observable in the teacher education programs of all high-performing education systems. For Australia to aspire to become a high-performing country like those that have been the subjects of attention in this chapter, these are some of the matters against which its teacher education might be benchmarked.

## **CASE STUDIES**

### **1: Canada**

In Canada, responsibility for education rests with each of the ten provincial and three territorial governments. Teacher education is offered in a total of 56 institutions nationally (Schwille, Ingvarson, & Holdgreve-Resendez, 2013).

#### ***Investing in education and attracting high quality applicants to teacher education programs***

Salaries are not high in relation to those of other professions, but job security and other benefits are compensations that attract able people. However, they are significantly higher than teacher salaries in Australia. Whereas maximum salaries in Australia are about 20% below the OECD average, salaries in Canada are about 20% higher. (Salaries for experienced teachers in Singapore rise to nearly double the OECD average.)

### *Policies and processes for selecting high calibre people into teaching*

Because universities are autonomous they are free to decide whom to accept into teacher training. This freedom is, however, limited by budget restrictions and institutional quotas. Universities with fixed quotas and a large number of applicants have ranking processes, with criteria mostly focused on academic achievement. Some institutions have other requirements, for example essays, work experience, references and interviews.

Generally, teacher training institutions in Canada select trainees from the top 30% of cohorts, and prospective pre-service teachers must have High Grade Point Averages to gain entry to teacher training (Mehta & Schwartz, 2013; Morris & Patterson, 2013).

### **Quality assurance**

#### *Entry to the teaching profession/ certification/licence to teach*

In most jurisdictions, teacher certification is the responsibility of Ministries of Education. In Ontario and British Columbia, certification is controlled by Colleges of Teachers, which are professional bodies similar to professional organisations of self-governing professions like medicine and law. These two provinces have statutory professional standards agencies that provide certification automatically to graduates of programs they have accredited. They both take a more 'explicit role' in quality control than Ministries of Education in other provinces (Crocker & Joduin, 2013).

#### *Course accreditation*

Universities organise their own programs, but most universities ensure that their courses conform to provincial teacher certification requirements. In practice, this involves collaboration between the universities and the certification bodies. Colleges of Teaching in Ontario and British Columbia, have some responsibility for course accreditation (Crocker & Joduin, 2013).

#### *Limiting the number of places in teacher training to demand*

To date, there have been few or no attempts to match the number of places in teaching to demand. As the school student enrolment numbers continue to decline and the teacher workforce ages, there appears to be an uneven distribution of teachers across the country, with shortages in some subject areas (e.g. mathematics) and in rural areas (Crocker & Joduin, 2013).

### **Characteristics of teacher education programs in Canada**

#### **Program types**

Canadian teacher training institutions offer both consecutive and concurrent programs. Some (four years) lead to a BEd degree, others (five years) lead to a degree in an academic specialty as well as the BEd. Consecutive programs comprise a first, academic, degree followed by an education degree of one or two years.

The duration of the education degree/qualification is related to certification requirements in each province. In Ontario, teachers are certified after a one-year post-graduate education program or a four year concurrent degree. Some provinces, for example Nova Scotia, Labrador and Newfoundland, require five years.

#### *Opportunity for mastery of subject content*

Most primary programs are generalist; student teachers study a range of subjects taught in primary schools. Secondary programs require student teachers to specialise, and to have majored in one or more subjects taught in secondary schools, in accordance with certification and provincial curriculum requirements. Courses in student assessment are common. Most programs also include studies in 'foundational' areas like sociology and the history of education.



Most jurisdictions have strong incentives for upgrading academic qualifications built into salary scales. Teachers typically have two academic degrees. Twenty percent have master's degrees. The proportion holding advanced degrees varies across jurisdictions and is linked to the structure of the salary scale (Crocker & Joduin, 2013).

### *Integration of theory and practice*

The long-term trend is towards school practicum experience being distributed through the program rather than concentrated towards its end. In Ontario, where almost all teacher education programs are still consecutive, the practicum takes up almost half of the two-semester professional training component (Schwille *et al.*, 2013). The duration of practicum varies between twelve weeks (Ontario) and twenty-one weeks (Quebec).

Universities and schools collaborate in arranging and managing the placement of student teachers. School supervisors have chief responsibility for the practical mentoring of students, with university staff visiting to observe their teaching. A survey of student teachers revealed that students regarded the practicum as the most valuable part of their teacher education experience and judged the quality of supervision provided by school teachers as better than that provided by university education faculty staff (Crocker & Dibbin, 2008).

## **2: Germany**

In 2000, PISA results showed that Germany ranked quite low in international tables of student achievement. It also had a higher correlation between socio-economic status and student achievement than any other OECD country (OECD, 2011). This is considered to be largely attributable to the separation of schools into low, middle and high ranking, (*Hauptschule*, *Realschule* and *Gymnasien*), a situation that reflects class and ethnic differences. Since 2000, this arrangement has been slowly changing, with more flexible entry requirements for the different types of secondary school, the merging of some *Realschule* and *Hauptschule*, and the establishment of some comprehensive schools.

### *Investing in education and attracting high quality applicants to teacher education programs*

Teaching has always been a high-status profession in Germany. This is largely due to a long standing culture of respect for authority, knowledge and intellectual achievement. It is also in part, because applicants to teacher education programs are selected from the top-third of secondary school graduates. All are required to have passed the demanding *Abitur* or matriculation examination (OECD, 2011). Most teachers are civil servants, and enjoy benefits such as tenure and generous pensions. Working conditions in most schools, especially the *Gymnasien*, are good, and German teachers are paid well. On average, their salaries are higher than those in other OECD countries. They also compare more favourably with to the salaries of other tertiary-educated workers than is the case in many other countries (OECD, 2012).

### *Policies and processes for selecting high calibre people into teaching*

Education in Germany is primarily the responsibility of the *Länder* or federal states. Development and coordination of education policy nationally is fostered by the Standing Conference of the (State) Ministers and Cultural Affairs (KMK).

The primary means of selecting student teachers is the highly regarded *Abitur*, the university entry requirement for all courses and professions, that was, from about 200 years ago until comparatively recently, almost exclusively the property of the German middle and upper classes. Its status and rigour is still vigorously defended and its educational standards remain high. A student's performance in the *Abitur* has been found to be one of the strongest predictors of their success in a teacher education program (Bloemeke, Suhl, Kaiser & Doehrmann, 2012).

Apart from the *Abitur*, German universities usually have no specific entry requirements to teacher education courses.

### ***Quality assurance***

#### ***Accreditation of teacher education institutions and programs***

The situation with regard to accreditation is changing in Germany because of the need for federal states to establish accreditation as part of compliance with the Bologna Declaration. A national accreditation council has been established and the KMK has developed a set of nationwide standards for teacher education that include standards for subject-related pedagogy and subject-matter courses.

The KMK has brokered an agreement between the Länder that all states will recognise each other's certification requirements (KMK, 2002). This agreement also specifies the structure and the intended length of teacher education programs, the number of required courses, curricular content, and general examination features.

#### ***Entry to the teaching profession/ certification/licence to teach***

At the end of the first, academic phase (three years) of their teacher education course, teachers take their first State Examination. This examination, which has written and oral components, tests students' knowledge of the subjects they intend to teach. They must also write a long subject-matter essay. Students who pass this examination are considered to have a university degree. Many states are now awarding a master's degree at this point (Koenig & Bloemeke, 2013).

The second State Examination takes place at the end of the second phase (two years) of teacher training. This phase, in which students spend the bulk of their time in schools, involves classroom observations and assessments by school and university staff, school principals, and state officials. It also involves one or more oral examinations and an essay on a practical issue.

Special state institutions are responsible for carrying out the two State Examinations that provide the qualification and licence to teach. The head of the examination committee must be a practising teacher. In larger federal states, groups of teachers are employed to write and conduct the examinations. The Examination Committees conduct the final oral examinations in each subject and in general pedagogy (Koenig & Bloemeke, 2013).

### ***Characteristics of teacher education programs in Germany***

Germany has seventy-four universities that provide teacher education. All programs are consecutive, with most involving three years in a first, 'academic' phase, and two years of pedagogical study in which future teachers work in schools for most of the time. The first phase begins with the theoretical study of at least two teaching subjects, subject-related and general pedagogy, and foundational subjects like philosophy and the social sciences. At the end of this phase students are awarded a degree (now often a masters degree, see above). Course content in the second phase is determined by the subjects the students plan to teach and the school year levels at which they will teach them. The depth of subject-matter knowledge that student teachers are expected to gain depends on the type of teaching career they select, with more and deeper subject knowledge expected of prospective senior secondary teachers.

Although there are no national regulations governing course content, the KMK has negotiated national agreement about the structure and duration of teacher education program types, required course work, and general course content. The agreement also covers the main features of the two state examinations that all future teachers must pass. The areas to be covered by the first State Examination are: general pedagogy and pedagogical theories, organisation of educational systems, history of education, lesson planning and teaching, intercultural education, assessment, educational

psychology and sociology of education (Nolle, 2004). The national curriculum requirements for the second phase of teacher education are more specific: they include topics related to subject teaching methods, education psychology, school student diversity, conditions of schooling and the legal and other responsibilities of schools (Koenig & Bloemeke, 2013).

### *The practicum*

Although elements of the practicum vary across the universities and states, there is a high degree of national standardisation (Lehnhard, 2004; Topsch, 2004). Regulations are set by the KMK, with provision for the universities to modify content and organisation.

The field experience has two components: the first requires student teachers to spend an extended period of time in a school, getting to understand the school environment. This aspect is also designed to allow the students to reflect on why they want to become teachers. Mentor teachers help the students to reflect and to write a report on their reflections. A university educator who lectures on the practicum assesses the report. The focus of the second component is on teaching. Student teachers are again mentored by a teacher. They are visited by a university educator who observes the student's lessons and assesses the report they write at the end of the practicum. This second component is subject-matter specific.

In the first (degree) phase of their studies, future teachers have about three periods of practical experience, each lasting about twelve days. The practicum requirements of the second, two-year phase are established nationally by the KMK in consultation with the Laender. The aim of this phase is to integrate theory and practice. Student teachers participate in a range of activities at their placement schools. They are required to spend extended periods of time studying subject-specific pedagogy and learning to apply it in their teaching. The State Examination, which they take at the end of this second phase, requires them to be observed teaching at least two lessons in two different subjects. It also requires an oral examination and a major essay in which they describe the planning and teaching of a series of lessons they have taught together with a commentary and analysis of the experience. Teachers enrolled in the two year second phase are required to be at a school for about 240 days.

## **3: Finland**

### *Attracting prospective teachers*

In Finland, teaching is regarded as a 'noble' profession. It enjoys a status similar to that of medicine, law and economics (Sahlberg, 2010). Finnish teachers earn very close to the national average salary level, generally equivalent to OECD average levels.

Teaching conditions in Finnish schools are superior to those of schools in most lower achieving education systems globally. In Finland, as in Korea and Japan, teachers spend less time in the classroom than teachers in many countries, including the USA and Australia, and more time in planning, evaluating, and building their professional learning cultures and communities. Sahlberg (2011b) notes that Finnish teachers have high expectations and a strong sense of moral purpose. High levels of professional autonomy and time to plan and work collaboratively allow them to meet their goals without the sense of frustration commonly experienced by teachers whose working conditions do not allow them these levels of autonomy.

### *Selecting prospective teachers*

Only the best and brightest are accepted to train as primary teachers, and gaining entry to teacher training is highly competitive. Students must do well in the rigorous matriculation examination and demonstrate excellent interpersonal skills. Only one in ten applicants is accepted into primary teacher training courses.

A masters degree is the professional entry requirement for all primary and secondary teachers. Pre-school and kindergarten teachers must have a bachelor's degree.

In 2010, more than 6600 applicants competed for 600 available places in pre-service education courses. In 2011-2012, nearly 2400 applicants competed for the 120 places in the Faculty of Education at the University of Helsinki (Sahlberg, 2011b).

There is little wastage in the system, as very few students fail to complete their studies.

#### *Pre-service teacher education programs*

Sahlberg (2011b) notes that teacher education programs are 'academic' in that they are strongly research- and evidence-based. They focus on integrating scientifically based and justified theory with clinical practice. Prospective primary school teachers major in education. Upper grade teachers concentrate their studies in a particular subject and pedagogical content knowledge related to that subject.

Only the university degree constitutes a license to teach. There are no 'alternative pathways' to teaching.

Primary teacher education candidates study three main areas:

- The theory of education
- Pedagogical content knowledge
- Subject didactics and practice

Every student completes a master's thesis in either education or the subject(s) they will teach.

Prospective primary teachers typically complete their theses in the field of education. Secondary candidates select a topic within their subject.

Finnish teacher education is aligned to the ENQA *Standards and Guidelines for Quality Assurance in the European Higher Education Area* (European Association for Quality Assurance in Higher Education, 2009) framework being developed under the ongoing Bologna process. Finnish universities offer a two-tier education program. A bachelor's degree (three years) is followed by a two year master's degree program. Studies are quantified in credit units within the European Credit Transfer and Accumulation System (ECTS). Each ECTS stands for around 25-35 working hours. Teacher education requirements are 180 ECTS credits for a bachelor's degree followed by 120 ECTS credits for a master's degree. Successful completion generally takes from five to seven years (Ministry of Education, 2007). Curricula are designed and implemented separately at each university, but all are nationally coordinated to ensure coherence.

Subject faculties (not the faculty of teacher education) issue master's degrees for subject teachers and thus play an important role in teacher education

#### *Integration of theory, research and practice*

In Finnish teacher education, research informs all programs. Knowledge derived from research is the basis of all courses and is integrated with practical experience and learning:

*Finland's commitment to research based teacher education means that educational theories, research methodologies and practice all play an important part in preparation programs* (Sahlberg, 2011, p. 15).

Over the five-year program, candidates advance from basic practice to advanced practice and then final practice. They observe and teach classes, observed by teacher education professors, lecturers and school teachers.

There are two kinds of practicum. The first is in university seminars where students practice teaching with their peers. The second happens in special Teacher Training Schools governed by the

universities. These schools have curricula and practices similar to other public schools, but they have higher status and teachers are paid more to teach there. This reflects the fact that mentoring by supervising teachers is regarded as an important part of candidates' training.

Primary school candidates spend about 15% of their intended study time (40 ECTS credits) practice teaching in schools. For secondary candidates, practice teaching comprises about one third of the curriculum. Some 'normal' public schools, called 'Municipal Field Schools' also contribute to pre-service teachers' practicum training. All staff in schools that train teachers have higher professional staff requirements and supervising teachers have to prove they are competent to work with trainee teachers. Teacher training schools are also expected to contribute to research in collaboration with the universities.

Because all upper-secondary school students in Finland are required to complete about 18 subjects, including at least two foreign languages, most teacher-education candidates enter training with a solid knowledge of subjects across the curriculum. In the University of Helsinki, about 15% of students choose mathematics as their minor subject. This earns them a licence to teach mathematics in Grades 7–9 (Lavonen *et al.*, 2007). Science is also a popular choice.

The higher education evaluation system, which is not specific to the education faculty, but operates across each university, offers rewards such as financial prizes and public recognition for effective, innovative university teaching practice and is an important 'driver' of improvement (Sahlberg, 2011c).

#### **4: Singapore**

##### *Investing in education and attracting high quality applicants to teacher education programs*

Meritocratic values provide strong incentives for everyone involved in education:

'Singapore's meritocratic system is part of the DNA of Singapore' (Morris & Patterson, 2013, p. 2). 'It is an honour to be a teacher in Singapore' (Stewart, 2011, p. 130).

In 2010, the education budget was 3.7% of the total, approximately 20% of total government expenditure, second only to defence (OECD, 2011). Its goals are clear with high levels of policy coherence and implementation consistency between the MOE and the NIE, the country's only teacher training institution, and the schools. The MOE is staffed by knowledgeable, pragmatic, well-paid people who are trained at some of the best universities in the world and have a global outlook. These officers function in a culture of continuous improvement (OECD, 2011; Stewart, 2011).

Starting salaries for teachers, designed to attract top quality applicants, are higher than in most OECD countries and equivalent to those of other professions (Stewart, 2011). Clear, rewarding, and interest-matched career paths are available.

Good working conditions in schools increase the attractiveness of the profession to high quality people. Typical teachers spend about 16 hours per week in face-to face instruction. They therefore have sufficient time for collaboration and planning. The Academy of Teachers, which opened in 2010, encourages teachers to share best practice through networks and learning circles. In recent years, the Ministry has introduced various support schemes such as the employment of aides to perform routine administrative duties, and the 'white space' initiative, which provides teachers with extra time to work collaboratively (Schwille *et al.*, 2013).

##### *Policies and processes for selecting high calibre people into teaching*

Singapore has implemented a single, state-wide selection process for pre-service teachers that is managed jointly by the MOE and the NIE (Barber & Mourshed, 2007). Marketing strategies linked to recruitment attract able secondary school graduates, who are then screened by the MOE's Human Resources Department so that only the most able, from the top third of secondary school graduates,

are successful. On average, only one in six applicants is accepted for training (Barber & Mourshed, 2007).

### ***Quality assurance***

#### ***Entry to teaching***

Entry requirements are stringent; for most applicants they are based on performance in the Singapore/Cambridge GCE O level or A level examinations. There are general requirements for each program as well as specialised requirements for individual subjects like mathematics. Shortlisted applicants are interviewed by a panel of serving or retired principals, Ministry officials and staff of the NIE. The panel assesses on the basis of academic performance and personal attributes in accordance with criteria established by the MOE (Wong *et al.* 2013).

#### ***Course accreditation***

Although there is no external accreditation program, the 'tight coupling' between the NIE and the MOE ensures coherence and accountability. The goal of NIE self-evaluation is to 'support future performance, not make judgements on the past' (Chong & Ho, 2009, p. 10). The evaluations consider first the context, in terms of the program's goals and interests, the inputs used to achieve the goals, the process by which this was done and the product, matching data to outcomes (Tatto *et al.*, 2013, p. 10).

Singapore has no licensing or certification procedures for teachers commencing their careers in schools. Graduation from the NIE automatically qualifies them to teach.

#### ***Limiting the number of places in teacher training to demand***

In Singapore, the number of places in teacher training is limited by demand. This means that, because there are fewer people in the courses, Singapore can spend more money per pre-service teacher on training (Barber & Mourshed, 2007, p. 22). Because of the careful screening of applicants, courses can be, and are, demanding. The result is teachers of very high quality.

The NIE is the only teacher training institution. It has formed strong partnerships with schools. On enrolment, student teachers are assigned to training schools that match their interests and capabilities and are likely to have vacancies that the students may fill after graduation. Graduation is followed by a strong induction program in the school (OECD, 2011).

### ***Research***

Singapore spends almost \$10 million a year, a substantial portion of the education budget on research, conducted mostly at the NIE, which is actively used in schools (Stewart, 2011). Classroom laboratories have been built at the NIE where student reactions to new educational ideas are monitored. This monitoring supports other efforts to ensure that successful innovations and examples of best practice are disseminated to all schools (Barber & Mourshed, 2007). As a result of research conducted at the NIE, teachers and schools have moved from a knowledge transmission pedagogy to a curriculum and pedagogy that focuses on complex higher order knowledge and skills.

### ***Characteristics of teacher education programs in Singapore***

#### ***Program types***

Postgraduate Diplomas in Education are awarded after four years of degree study and one year of pedagogical training. The system also offers a non-graduate two-year diploma program for primary teachers, and concurrent degree programs. In 2001, these were positioned as four year Bachelor of Arts (Education) and Bachelor of Science (Education) with a fifth optional year in a subject discipline.

Concurrent programs allow students to specialise in either primary or secondary teaching, but not both. The NIE also now offers masters and doctoral programs (Schwille *et al.*, 2013).

#### *Opportunity for mastery of subject content*

The NIE programs comprise:

- Curriculum studies
- Subject knowledge
- Practicum
- Language enhancement and academic discourse skills (LEADS courses)
- Academic studies

Subject knowledge courses align with the relevant curriculum studies courses. Schwille *et al.* (2013, p. 201) note that ‘the resultant combination is an innovative feature of teacher education programs found in only a few countries around the world.’ Subject knowledge is a core component of the primary teacher education programs (Schwille *et al.*, 2013).

All teacher education candidates are required to complete core courses in subject knowledge, either in their first degree or, for those who choose a concurrent program, in combination with their training at the NIE. All graduates who intend to teach mathematics in a secondary school must have a first degree in mathematics or successful completion of a designated mathematics course at university level or the successful completion of a national examination to enter university with mathematics as a required subject. All primary teachers are required to have graduated from secondary school with a mathematics component.

The mathematics department at the NIE comprises mathematicians as well as teacher educators in mathematics. Schwille *et al.* (2013) note that this arrangement is not common in most universities; the two groups usually work in separate faculties and seldom work together. At the NIE they collaborate on joint projects and committees that maximise opportunities to share their knowledge. All of the mathematicians supervise student teachers. They are expected to keep up with the MOE’s curriculum requirements and initiatives.

#### *Integration of theory and practice*

The close relationship between the NIE and the training schools provides maximum opportunity for student teachers to practise what they learn in their studies and to reflect on their practice in the light of evidence-based research and theory. Every student is assigned to a trained mentor in a school, to one or more other teachers, and to one NIE supervisor. These people form a panel that assesses each student and awards a grade commensurate with performance. Students at risk of failing, or who are aiming for distinction in the practicum have their assessments moderated by another senior NIE supervisor. The weight of academic credit for the practicum is 23% for the diploma, 16% for the degree and 25% for the postgraduate diploma.

In the two-year diploma program, students spend five weeks as ‘teaching assistants’ in classrooms in their first year, and have ten weeks of teaching practice in the second. In the concurrent degree program they spend two weeks in the first year observing programs in a primary *and* secondary school, five weeks as assistant teachers in the second year, five weeks as practising teachers in the third year and they have ten weeks of full teaching practice in the final year.

### **5: Chinese Taipei**

There are fifty-nine universities providing teacher education for future secondary and primary school teachers in Chinese Taipei.

### *Investing in education and attracting high quality prospective teachers*

In traditional Chinese culture, teaching is a prestigious profession. Current policy reinforces its attractiveness by ensuring generous teacher salaries and benefits. All salaries for public school teachers are government funded and are therefore seen as guaranteeing stability and security. Teachers' salaries are well above the earnings of most workers and on a par with those of some professions. Working conditions in schools are pleasant and teachers have sufficient time to carry out classroom and other duties (Hsieh, Ling, Chao, & Wang, 2013).

### *Selecting prospective teachers*

Because of the favourable conditions in schools and the profession, entry to teaching is highly competitive in Taipei, with only the best and brightest succeeding. Selection to teacher training is the responsibility of each university within the guidelines set by the Ministry of Education. Only one in ten applicants is accepted into primary teacher training courses.

Only students who have successfully completed their first year or higher in an academic program at a university are eligible to apply. This means that second year students are in competition with students who are already at masters or doctoral level. Most universities base their selection on university grades, and many also require prospective students to take tests in areas considered relevant to teaching, such as language, general educational knowledge, attitudes and personality traits. Some universities take aspects like character, moral conduct and extra-curricular activities into account. There are no subject specific requirements in the selection processes (Hsieh *et al.*, 2013).

### **Quality assurance**

Chinese Taipei has clear quality control mechanisms at every stage of teacher education, from selection through to certification. The system is regulated by the Teacher Education Act of 2002 and the Teacher Enforcement Rules of 1995. These required the government to set up a Teacher Education Review Committee with two functions: (1) quality control of the teacher education institutes and (2) control of the teacher education curriculum. Under the Teacher Education Act students must be enrolled in at least the second year or higher of university before they can be admitted to a teacher education program. They also have to pass various selection processes that vary according to the university, but all processes are strongly influenced by the admission guidelines set by the Ministry of Education.

A feature of the pre-service education system is that scholars and academics are trusted to research and make proposals in relation to pre-service teacher education. These proposals pass through the legislative processes (Legislative Yuan and President's signature), and become law, which is translated into regulations enforced by the Executive Yuan.

The Teacher Education Review Committee has between twenty-one and twenty-seven members. In 2008, the Committee included fourteen professors from teacher education universities, six Ministry of Education officers, four secondary school principals, two teacher representatives and one Executive Yuan member. The committee has the following responsibilities:

- Make recommendations and consult on teacher education policy
- Review the planning of important development projects in teacher education
- Review the establishment, recognition, evaluation, modification and termination of teacher education universities
- Review teacher education courses



### *Requirements for entry to the profession*

After completing their teacher education program, graduates take the Ministry of Education's Teacher Qualification assessment, which takes place two months after the students have finished their educational practicum. On passing this test, graduates are issued with a teaching credential that provides them with an official qualification to teach in their field and permission to apply for a teaching position. Before securing a position they must participate in an on-site selection process that the school district or individual schools administer in two stages. The first stage involves written tests designed to assess the applicant's professional and subject-matter knowledge. In the second stage, applicants must give a demonstration of their teaching and engage in a written interview. A panel of three to five members assesses these. The panel usually comprises the principal and teachers at the school (Hsieh *et al.*, 2013)

### *Limiting teacher training places to demand*

Because of demographic and economic factors, the number of prospective school students in Taipei began to decline in the first decade of the 21<sup>st</sup> century. In 2005 and 2006, the Education Review Committee decided that teacher education universities should be inspected and given a grading in a three level grading system. Field inspection visits were and are the primary means of evaluation (Ministry of Education, 2007). In 2006, admission quotas were adjusted so that those that received a grading of 3 had to stop admitting students, those with a grading of 2 had to cut admissions by 20%, and only those with a Level 1 rating were allowed to retain their existing admission quota (Ministry of Education, 2006, p. 4). These reductions increased the already strong competition for places. This system is still in place today (Hsieh *et al.*, 2013).

### *Teacher education programs*

#### *Curriculum*

The teacher education institutions develop their curriculum and submit it to the Ministry of Education for approval. Completion of courses in subjects taught in schools is compulsory. Prospective teachers who plan to teach mathematics in secondary schools need to complete between 30 and 40 credits in mathematics of the total of 154 credits required for them to graduate from university with a Bachelor's degree. Other credits are in general pedagogy, elective content, materials and methods of teaching, foundations of education, and teaching practice (Hsieh *et al.*, 2013).

#### *The practicum*

Some universities arrange for their students to teach in primary or secondary schools at the same time as they are taking the education professional curriculum. Most students, however, graduate from a university with a Bachelor's degree before they are considered ready to undertake the practicum. These pre-service teachers need to work as interns fulltime for half a year at either primary or secondary schools. Practicum schools establish strong support mechanisms for student teachers, including counselling groups and mentors. Teacher educators from the university work with schools, visit regularly, and provide advice to the students and schools. School mentors/supervisors must have at least three years teaching experience. Fifty per cent of the intern teachers' evaluations are scored by the internship supervisors, principals and directors from the practicum schools, and 50% by internship supervisors from the universities practice (Hsieh *et al.*, 2013)

## CHAPTER 7: BENCHMARKING AUSTRALIAN TEACHER EDUCATION SYSTEMS

The quality of professional preparation programs depends to a significant extent on the wider social, policy and regulatory context within which they operate. In comparing best-practice teacher education programs across countries, it was therefore important to compare the broader policy contexts and teacher education systems within which they operate.

The previous chapter indicated that high-achieving countries have stable and effective policies and mechanisms in place to assure the quality of initial teacher education entrants, programs and program graduates. These policies and mechanisms determine who gains entry to teacher education, which providers are allowed to train them and who gains full entry to the profession. They include policies and practices related to:

### A. **Recruitment for entry to teacher education:**

*High-achieving countries have stable policies in place to assure the quality of entrants to teacher education, such as:*

- i. Making teaching an attractive career option for high academic achievers
- ii. Matching supply and demand
- iii. Setting high standards for admission to teacher education programs

### B. **Accreditation of teacher education institutions:**

*High-achieving countries have regulated teacher education systems and rigorous procedures for the accreditation of teacher education programs*

### C. **Transition and entry to the teaching profession:**

*High-achieving countries require and support a period of mentored induction coupled with rigorous assessments of readiness for full entry to the profession.*

This chapter explores where Australia sits on these dimensions relative to high-achieving countries.

Quality assurance is important. The IEA TEDS-M investigated the preparation of teachers of mathematics in seventeen countries. It found that there was a significant relationship between the strength of these quality assurance arrangements and the quality of graduates, as measured by tests of mathematical knowledge and mathematical pedagogy used in TEDS-M. Countries with strong quality assurance arrangements, such as Chinese Taipei and Singapore, scored highest on these measures. Countries with weaker arrangements, such as Georgia and Chile, tended to score lower on measures of mathematical knowledge and knowledge about how to teach it.

TEDS-M showed that countries, such as Chinese Taipei and Singapore, that do well in international studies of student achievement in mathematics such as TIMSS (Mullis, *et al.*, 2007) ensure the quality of entrants to teacher education. They also have strong systems for reviewing, assessing and accrediting teacher education providers. In addition, they have strong mechanisms for ensuring that graduates meet high standards of performance before gaining certification and full entry to the profession.

### A. **Recruitment for entry to teacher education:**

***How well do Australian policies for attracting, developing and retaining high quality teachers compare with high-achieving countries?***

High-achieving countries have a number of concerted policies in place to ensure that sufficient high quality applicants for places in teacher education program to match the demand. Salaries for

teachers in countries such as Finland and Singapore, relative to GDP per capita, compare favourably with those in other professions. Governments accept that, if high quality education is the goal, they have a responsibility to ensure that teaching can compete with other professions for a sufficient share of abler graduates from secondary schools and universities.

School student performance on international tests is related to teacher salaries relative to GDP per capita. Recent research indicates that *what distinguishes countries with higher levels of student achievement is the salary level **experienced** teachers can attain, **relative to other professions***. Salaries for teachers in countries such as Canada, Chinese Taipei, Finland, Korea and Singapore compare favourably with those in other professions. Research shows that this is one of the main factors turning potentially good teachers away from choosing teaching in Australia.

The academic ability of students attracted into teacher education is sensitive to the level of teacher salaries, relative to other professions. The ratio of Australian teacher salaries to GDP per capita, 1.30, is now among the lowest in OECD countries, where the average is 1.65. Beginning teachers in Korea are paid at the 78<sup>th</sup> percentile in their country's wage distribution, and potentially can rise to well over two-and-a-half times the starting salary, whereas those in Australia are paid at around the 50<sup>th</sup> percentile and rise to less than one-and-a-half times starting salaries. Whereas maximum teacher salaries in Australia are about 20% below the OECD average, salaries in Canada are about 20% higher. Salaries for experienced teachers in Singapore rise to nearly double the OECD average.

In comparison, it is not immediately obvious what policies Australia has in place to raise the status of teaching, to attract sufficient future teachers from the top third of secondary school graduates, or to attract more high quality graduates into shortage areas of teaching. In a context in which students face the prospect of increasing costs of a university education, it may be worth looking at proposals in England to give bursaries to Postgraduate Certificate of Education (PGCE) students (Noble-Roger, 2011). Without bursaries, many prospective teachers in England will be either unwilling or unable to pay the higher fees that now apply. The indicative range of bursaries suggested by the Government range from £4000 for a primary PGCE student with a 2:2 degree to £20000 for a priority subject trainee with a 1<sup>st</sup>. It is argued that the level of bursaries should reflect relative levels of demand for teachers in particular subjects, and differentiating rates by degree class could help attract high calibre candidates

Although Australia has been investing more money in education, it is questionable whether we have focused on strengthening the attractiveness of teaching as a career. Teacher salaries in Australia relative to GDP per capita have been declining for many years. The 2012 report of the Productivity Commission pointed out that:

*Increases in teachers' pay do not appear to have kept pace with those in other professions. Indeed, the evidence is that, since 1995, there has been no increase in the average real salaries of Australia's more experienced teachers (p. 5).*

The studies reviewed in Chapter 7 indicate that there are clear links between:

- teacher salaries relative to GDP per capita and student performance on international tests;
- teacher salaries, relative to other professions, and the academic ability of students attracted to teacher education programs; and
- the academic ability of entrants to teacher education programs and the quality of programs and their graduates.

Present indications are that recruitment policies in Australia are failing to ensure that sufficient future teachers are being attracted from the top 30% of the student cohort. Table 3 indicates that, for the past three years, instead of 100 per cent, less than 50% of Year 12 students receiving offers for places in undergraduate teacher education courses had ATAR scores above 70. While it should be noted that over 50% of offers go to applicants who have not come directly from Year 12 in 2012

most of these applicants completed Year 12 only a few years earlier. They have ATAR scores, but these are not reported by tertiary admissions agencies. There is no reason to believe that the profile of their ATAR scores would be very different from Year 12 direct entrants.

Table 3 indicates that the proportion of Year 12 entrants to undergraduate programs with ATAR scores less than 50 nearly doubled over the past three years. Only 21.5% of Year 12 offers went to students with ATAR scores above 80, compared with an average of well over 50% across all other university programs (e.g. nearly 70% for science and engineering).<sup>9</sup>

**TABLE 3: ATAR scores for Year 12 offers for undergraduate teacher education programs**

| Year 12 offers by ATAR band | 50.00 or less | 50.05-60.00 | 60.05-70.00 | 70.05-80.00 | 80.05-90.00 | 90.05 or more | Total  |
|-----------------------------|---------------|-------------|-------------|-------------|-------------|---------------|--------|
| Education 2012              | 6.5%          | 15.1%       | 30.2%       | 26.4%       | 16.8%       | 5.0%          | 100.0% |
| Education 2013              | 7.3%          | 16.6%       | 27.2%       | 27.4%       | 16.2%       | 5.3%          | 100.0% |
| Education 2014              | 12.0%         | 15.5%       | 27.2%       | 23.9%       | 15.8%       | 5.6%          | 100.0% |

The proportion of applicants who receive an offer of a place in a teacher education program has increased from 60% to 85% over the past ten years. Rates for other fields like engineering and science have remained steady over the same period.

The offer rates vary significantly from one state to another. Last year less than 7% of Year 12 students entering undergraduate programs in Victoria from Year 12 had ATAR scores of 80 or more, out of nearly 5000 entrants. More than 20% (over 2000 students) had ATAR scores less than 60 in 2013, twice the proportion for any other state. More than 20% (over 2000 students) had ATAR scores less than 60 in 2013, twice the proportion for any other state. Two thirds of offers to students with ATAR scores less than 50 (387) were made by Victorian universities.

This benchmarking exercise indicates that Australia's teacher education policies are currently falling well short of high-achieving countries in terms of ensuring that future teachers are recruited mainly from the top 30% of the age cohort. Initial teacher education programs have the highest percentage of students entering with low ATAR scores, that is, below 50 and between 50 and 60 (Lloyd, 2013). At the same time as teacher quality is being emphasised, there appears to be little recognition that addressing the slippage in student outcomes internationally calls for long-term investment that will make the teaching profession as strong and attractive as that countries such as Finland and Singapore, where salaries for teachers compare favourably with those in other professions.

### **Selectivity**

Research indicates that the quality of teachers graduating from a teacher education program, and their eventual effectiveness in the classroom, depends in part on the academic quality of the students it is able to attract (Boyd, et al. 2008; National Research Council, 2010; Feuer, et al. 2013). Australian data from state and territory admissions councils indicates wide variation among programs in the academic profile of students receiving offers and the percentage of students giving first preference to a program. The TEDS-M study (Tatto *et al.*, 2012) found that entrants to primary undergraduate teacher education programs in countries whose graduates score high on tests of

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<sup>9</sup> In 2011, there was a total of approximately 75 000 students in teacher education programs in Australia. About 28 000 students commence teacher education programs each year, 20 000 of whom enter at the undergraduate level and 8000 at postgraduate level.

mathematics knowledge and mathematics pedagogical knowledge come from the top 20% of the age cohort. There is good reason, therefore, to include program selectivity as a criterion in the assessment and accreditation of teacher education programs.

As yet, no research has been conducted examining the relationship between the variation in the selectivity of programs and the effectiveness of graduates in coping with the demands of teaching. Present indications are that current selection practices will undermine Australia's capacity to continue to reproduce a high quality teaching profession. Given the number of offers being made to students with very low ATAR scores by some providers, it would seem that several thousand entrants have not been able to 'successfully demonstrate their capacity to engage effectively with a rigorous higher education program and to carry out the intellectual demands of teaching itself', as prescribed by the Australian Program Standards for accrediting teacher education programs (AITSL, 2011a).

Research indicates that the quality of a teacher education program and the academic background of entrants are not independent. They are inter-related. The prior knowledge and level of achievement of entrants affects the quality of teaching and learning activities in a university program as well as the intellectual demands lecturers can place on them. Teacher education programs cannot be both remedial programs and high quality professional preparation programs.

It is noteworthy that standards for accrediting teacher education programs in the USA and the UK, now agree that programs should be assessed in terms of their selectivity; that is, in terms of the academic quality of the students they are able to attract. The APS also includes a standard related to selection, Standard 3: Program entrants. However, even allowing for special circumstances and the need for diversity, it is difficult to see how the spirit of Standard 3 is being implemented when approximately 9000 or 50% of entrants have ATAR scores below the top 30% of the age cohort.

### ***Selection criteria***

What kinds of evidence provide a valid and reliable basis for selecting students for entry to teacher education programs? Research from the United States indicates that the academic ability and qualifications of entrants is important in selection for a number of reasons. There is a relationship between scores on verbal ability and scholastic aptitude tests, and eventual teaching effectiveness. Candidates with strong academic qualifications are more likely to be effective teachers, as measured by growth in students' test scores. Deep subject-matter knowledge is a necessary condition for being able to use effective methods for teaching that subject matter (National Research Council, 2010; Feuer et al., 2013). There is no evidence to support the selection of students on the basis of personality characteristics and psychometric tests. Interviews are a notoriously unreliable method for selecting applicants and use of these procedures may be open to legal challenge.

Recent reviews of research would suggest that valid grounds on which to select applicants include general verbal ability, evidence of capacity to complete a rigorous university program successfully and meet the intellectual demands of effective teaching. In some circumstances, applicants may also have a strong track record of working successfully with young people in a variety of other settings such as youth work, sporting organisations or community groups, which can provide valid supplementary evidence in the selection process.

There is no evidence indicating whether or not setting higher academic standards would reduce the diversity of students entering teacher education programs in Australia. There is evidence that programs with high admissions criteria are more likely to attract more academically capable students. As a recent OECD report points out:

*By raising the bar to enter the teaching profession, these 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, p. 236).

Barbara Preston<sup>10</sup> points out that:

*There are three likely and inter-related aspects of the causal relationship between high entry standards and the attraction of capable people, each of which may have varying importance to particular individuals.*

*First, as the OECD quotation above indicates, there is a simple status effect of exclusivity. Arrow comments that selective entry would 'draw some highly qualified individuals who would otherwise get into other fields' (Arrow, 1963, p. 956), and Kleiner refers to the 'shame costs' for a practitioner contemplating moving to a jurisdiction with lower entry standards (2000, p. 192).*

*Second, the requirement that all entrants to teaching successfully complete a rigorous professional preparation program signals that teaching is in fact a worthy profession in which serious professionals can meet important challenges – it is not an occupation in which those without professional preparation can succeed, however well-meaning they may be.*

*Third, and of greatest substantive importance, high entry standards requiring successful completion of a rigorous and effective initial teacher education program, indicate that teachers will have highly capable, professional colleagues with whom they will work, both directly on a day-to-day basis, and indirectly as the profession as a whole plays a major part in determining the policies and practices of schooling.*

While applicants for teaching may have followed different pathways into teacher education, this should not mean different academic standards for entry. Research reviewed in earlier chapters indicates that the quality of a teacher education program and the academic background of entrants are inter-related in a number of ways. It is difficult to disentangle the relative contribution of each. The quality of teaching and learning activities in a university program is affected by the prior knowledge and level of achievement of students, which also shape the intellectual demands that lecturers can place on students. The profile of the student body in teacher education programs also affects the quality of students attracted to that program (Barber & Mourshed, 2007).

The Australian Program Standards for accreditation of teacher education programs state:

*All entrants to teacher education programs will successfully demonstrate their capacity to engage effectively with a rigorous higher education program and carry out the intellectual demands of teaching itself (AITSL, 2011a, p. 13).*

As Chapter 2 indicates, the intellectual demands of high quality preparation programs are considerable and increasing, both in terms of knowledge of research and application to performance. One indication of whether applicants can cope with this demand is whether they have been able to cope with the intellectual demands of secondary education.

However, this review indicates that Australia needs to lift the attractiveness and selectivity of its teacher education system in comparison with high-achieving countries, if all its teacher education graduates are to meet these demands.

## **B. Accreditation of teacher education programs**

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<sup>10</sup> Personal communication

***High-achieving countries have regulated teacher education systems and rigorous procedures for the accreditation of teacher education programs***

*Accreditation* is an endorsement by an external agency that a teacher education program is produces graduates who are competent to enter the profession and take up a teaching position. As Chapter 7 indicated, countries whose students perform well on international tests of student achievement have a national agency with clear authority to accredit teacher education programs. Examples of accreditation agencies include the General Teaching Council for Scotland, the Ontario College of Teachers and the Council for Accreditation of Educator providers in the United States.

In England, the Office for Standards in Education, Children's Services and Skills (Ofsted) is responsible for conducting inspections of all providers of programs leading to qualified teacher status (QTS) for maintained schools. Accreditation is not granted by Ofsted, but by an executive agency with the Department for Education - the National College for Teaching and Leadership. Ofsted inspectors test providers for compliance with Initial Teacher Training (ITT) criteria.<sup>11</sup> A judgment of 'non-compliance' can lead to withdrawal of accreditation.

England has been surveying 'Newly Qualified Teachers' every year for more than ten years. The survey questions invite them to assess the quality of their initial teacher training in a number of key areas, and report on their induction experiences and current employment circumstances. Around 6700 NQTs completed and submitted an online questionnaire in 2013, a response rate of 20%.

In 2013, 90% gave a very good or good rating when asked about the overall quality of their training; a small increase compared with the 2012 survey and a continuation of a positive trend since the 2010 survey (when 84% of respondents rated the overall quality of their training as "very good" or "good"). Forty-six per cent rated the overall quality as very good; an increase of nine percentage points compared with the 2012 survey and the highest proportion of respondents rating their training as "very good" for ten years. The survey does allow for comparisons to be made across different programs and between different types of pathway.

Each state and territory in Australia has a statutory body with responsibility for the accreditation of teacher education programs. There has been surprisingly little research on the impact of these accreditation systems on programs or their outcomes. In 2011, the states and territories agreed to a common set of accreditation standards and procedures (AITSL, 2011a), to be administered still at the local level, with some interstate input. Plans might be considered for evaluating whether the new procedures are having an impact on the quality of programs and their outcomes.

**Implementation of the Australian Program Standards**

Our review indicates that teacher education programs are largely complying with the content requirements of the Australian Program Standards as laid out in the *Accreditation of initial teacher education programs in Australia: Standards and procedures* (AITSL, 2011).

What matters, however, is how well these accreditation standards are being applied, *as standards*. Standards are not standards until it is clear what counts as valid evidence of their implementation and how decisions are made about whether the evidence shows that the standards have been met. Australia has some way to go before current accreditation procedures are fully standards-based in this sense. The accreditation standards developed by the CAEP in the USA set the current benchmark in terms of rigour. Australian Program Standards need similar depth before if they are to provide valid assessments of teacher education programs.

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<sup>11</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/279344/ITT\\_criteria.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/279344/ITT_criteria.pdf)

When the current arrangements for the assessment and accreditation of teacher education programs in Australia are compared with the systems in high-achieving countries, and in other professions, there is clearly room for improvement if they are to provide a valid and reliable indicator of program quality.

To assist in this, the current teaching standards also need to go deeper than the current generic framework and build closer links to current research on teaching and learning. Each standard needs development and elaboration for each of the specialist fields that make up the teaching profession if it is to provide a useful guide to program developers, or a basis for developing valid assessment measures of knowledge and performance. This calls for a major national project that brings groups of expert teachers, teacher educators and researchers together in developing standards for each of the specialist fields of teaching.

At present, there appears to be little documentation of what counts as meeting the graduate career stage of the Australian Professional Standards for Teachers. What should a primary graduate know about the research on early numeracy development? How should possession of that knowledge be assessed? Which teaching strategies should a graduate teacher of English have mastered? How should they be assessed?

If the current accreditation procedures are to have an impact on teacher quality, they will need to give main emphasis to outcome measures and less to reviews of course content. This will require a major national project to develop a range of valid standards-based measures of graduate knowledge and performance to parallel the national project elaborating the meaning of teaching standards for each specialist field. A starting point for this project might be a survey of the methods universities currently use to assess whether graduates meet standards and their quality and comparability. CAEP conducted a similar project a few years ago (Wise *et al.*, 2008).

### **Does Australia need eight accreditation bodies?**

It is desirable that arrangements for accrediting teacher education programs are effective and efficient in assuring that all programs are consistent with best practice principles. Currently, five accreditation bodies are responsible for accrediting programs from only ten providers, reducing capacity for independent assessments and cross-fertilisation of ideas. Large numbers of students are enrolled in programs (usually on-line) provided to several states and territories and some universities have campuses in more than one state. These developments mean that state and territory boundaries no longer necessarily match the scope of provision, or meet the need for a rigorous accreditation system.

Most professions, apart from teaching, delegated the accreditation function to specially created national accreditation agencies some years ago. The Australian Medical Council was established in 1985. The Australian Health Practitioner Regulation Agency was established by the Council of Australian Governments in 2008 as a single National Registration and Accreditation Scheme for registered health practitioners.

These agencies provide a nationally consistent accreditation system on behalf of both state and territory registration authorities and professional bodies. The Architects Accreditation Council of Australia now requires applicants for the accreditation of architecture programs to provide documentary evidence that students have demonstrated achievement of competencies as set out in the National Competency Standards in Architecture.

Merely achieving national consistency is unlikely to deliver an accreditation system as rigorous as those in high-achieving countries. National accreditation, guided by research-based teaching standards, will afford greater consistency, comparability and quality assurance across teacher education programs, without standardising programs. With a greater focus on evidence of outcomes, providers have greater freedom to experiment with better ways to prepare graduates to



meet the standards. Importantly, national accreditation would afford greater opportunities to benchmark Australian teacher education against international best practices and opportunities to participate in trans-national accreditation initiatives.

### **Does Australia need over 400 teacher education programs?**

Estimates vary; however, there are currently nearly 50 teacher education providers and over 400 accredited programs – a high number for a relatively small population. The number of small providers and programs has increased in recent years, which is a potential threat to their overall quality.

Some universities are aggressively marketing on-line programs in several states. This is widening opportunities for participation in teacher education; however, there has been little research into the relative effectiveness of these programs or their capacity to ensure students have the opportunities for the kinds of school and clinical experience consistent with best practice.

It is unlikely that all 400 programs can provide a quality of courses and school experience consistent with the best practice principles listed above. Many programs are very small and so are unlikely to be able to provide the range of suitably qualified staff required to help students meet the graduate standards. Twenty out of 60 programs in Victoria had entry cohorts of fewer than 50 students in 2014.

Many undergraduate programs are unable to attract sufficient students with the demonstrated ability to meet Australian Program Standard 3.1, or the level of Year 12 study scores each state has provided as proxy indicators of personal literacy and numeracy equivalent to those of the top 30 % of the population (AITSL, 2013a). These seem to be reasonable expectations for work as intellectually demanding as high quality teaching, but 2014 data suggests that over 50% of offers went to students below this level.

Consideration might be given to the model in England and Wales where funding is only available for programs that are attracting students who meet a designated entry standard. A large number of small programs places an unnecessarily high burden on a country's accreditation system. It costs as much in terms of time and money to evaluate a small program as it does to evaluate a large one. Countries such as Finland and Chinese Taipei concentrated teacher education in a smaller number of well-resourced universities some years ago, as part of a long-term strategy to lift the quality of teacher education and the status of teaching. Consideration should be given to the possible benefits of a similar policy for Australia.

### **C. Transition and entry to the teaching profession**

#### ***High-achieving countries require and support a period of mentored induction coupled with rigorous assessments of readiness for full entry to the profession.***

There is a shortage of data about the current quality of transition and induction in Australian schools. Most employing authorities have policies to support new teachers during this period; however, it is rare for the teaching load of new teachers to be as light as it was in the past. In their report on leavers and stayers in the NSW Department of Education, Schuck *et al.* (2011) review several studies of attrition in Australia indicating that 20% attrition over the first five years is a reasonable estimate of the rate.

International data is hard to come by, however, there should be no doubt that current arrangements about transition and induction in Australia are less than optimal. As mentioned in Chapter 4, results from the 2013 cycle of TALIS show that the availability of formal and informal induction activities for teachers new to schools in Australia (as reported by principals) was higher than the international TALIS average but not as high as the rate found in Singapore. Furthermore, in Australia and in many other participating TALIS countries, there was an observed gap between the reported percentage of

availability of programs by principals and the participation rates reported by teachers. The percentage of mentoring programs available for teachers new to schools was higher in Australia than the TALIS average.

A major advance in this area in high-performing countries, as well as in Australia, has been to separate the graduation decision (qualification), which is the responsibility of universities, from the decision to grant full entry to the profession (registration), which is usually in the hands of government agencies or statutory teacher registration authorities.

The transition from graduation to registration then becomes a staged process of further standards-guided professional learning around aspects of teaching that can only be developed effectively when new teachers begin to work in schools, for example, classroom management and reporting to parents. One year of teaching is too short for this process to be effective. Every teacher knows the first year is a steep learning curve and that it takes at least two to three years to find your feet and meet challenging teaching standards. When gaining full entry to the profession is based on a rigorous performance-based national registration system and linked to a significant jump in salary, it will have a major impact on the effectiveness of professional learning during the transition and induction period.

AITSL has led work to develop a consistent framework for registration of teachers in all states and territories. The Education Ministers of all jurisdictions endorsed this framework in October 2011. To achieve full registration, evidence of performance is required at the Proficient career stage of the Australian Professional Standards for Teachers. However, while there is national consistency concerning the proficient level standards, there is still a great deal of research and development work to be done before Australia will have a nationally consistent system for assessing provisionally registered teachers and national consistency in setting standards for registration.

### **Employment and early career outcomes**

The Australian Program Standards (AITSL, 2011a) include Standard 7:

*7.1 Providers use a range of data, such as student assessment information, destination surveys, employer and other stakeholder feedback to drive program improvement and periodic formal evaluation.*

*7.3 Providers supply data as required to support local and national teacher workforce supply reporting, to support program and provider benchmarking, and to build a cumulative database of evidence relating to the quality of teacher education in Australia. Data collected is held in a centrally managed database and, under agreed protocols, will be available to all jurisdictions and teacher education providers for research, evaluation and program improvement.*

It is a positive thing that these requirements are in the accreditation standards, but they do not seem to be widely implemented at present. Running destination surveys can be expensive for individual teacher education institutions, and there would be a risk that any such data collections are not comparable with each other.

Only fairly limited information on employment destinations is publicly available (AITSL 2013, *Initial Teacher Education: Data Report*). These destinations data are based on Graduate Careers Australia (GCA) annual surveys conducted about four months after people graduate (with some follow-ups of sub-samples at three and five years) and the SiAS survey. The benefit of the GCA work is that it has been running for a long time and teacher education can be compared with other courses. However, as the AITSL (2013) report notes, the GCA surveys are most relevant at the undergraduate level because most bachelor programs included in the education category are initial teacher education programs. This is not the case at the graduate level, where there is no appropriate differentiation.

SiAS is a national survey that has been conducted by ACER for the Australian Government in 2007, 2010 and 2013. SiAS includes information on perspectives from early career teachers about their preparation and support; and from principals about the preparedness of recent graduates. However, SiAS is not able to relate such data back to specific courses or institutions. As well, SiAS is not a destinations survey as it only collects information from those currently teaching in schools.

It is understood that the National Teacher Workforce Dataset (NTWD) project is trying to fill some of these gaps, and that reports will be released soon. However, at this stage it is not clear whether the NTWD will be an ongoing data collection.

The medical profession offers an example of a more comprehensive approach than is currently available for teacher preparation: *The Medical Schools Outcomes Database and Longitudinal Tracking (MSOD) Project*.<sup>12</sup> This is intended to better understand medical students' educational experiences as well as to provide data for workforce planning in the medical profession.

The strengths of this approach are that:

- a) it appears to have wide support from the Deans of Medicine, medical student associations, the federal Health Dept, rural doctors' associations etc, which has helped with consistency of methodology and response rates;
- b) it initially collects information from commencing medical students, which is then linked to an exit survey of graduating students, and follow-up collections at one, three and five years post-graduation; and
- c) with appropriate privacy controls, the data are available to other researchers and policy analysts which over the longer-run reduces the data collection burdens on medical schools and students, and associated costs.

Such an approach could be worth considering for teacher education in Australia.

## Conclusion

High-achieving countries, in terms of international tests of student achievement, have had concerted and coherent policies and systems in place over the long term for assuring a strong teaching profession and quality teaching generally. They have stable policies in place to assure the quality of entrants to teacher education, such as:

- Making teaching an attractive career option for high academic achievers
- Matching supply and demand
- Setting high academic standards for admission to teacher education programs;

They have regulated teacher education systems and rigorous procedures for the accreditation of teacher education programs and they require and support a period of mentored induction coupled with rigorous assessments of readiness for full entry to the profession

If it is reasonable to use countries reviewed in the previous chapter as 'benchmarks', Australia's current arrangements for assuring a high quality teacher education system do not compare well.

Australia has had a relatively strong teaching profession, reflected in its performance internationally until recently. However, this review indicates that if Australia is to rejoin high performing countries it needs to carefully examine the effectiveness of its current policies and systems for assuring the quality of teacher education and future teachers in comparison with those in high performing countries.

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<sup>12</sup> See: <http://www.msod.org.au/about/about>

Australia undoubtedly has teacher education programs equal to the best in the world. It does not, however, have effective policies and systems for ensuring that all teacher education programs can meet high outcome standards.

The areas where Australia does not compare well are workforce planning and quality assurance. High-achieving countries are careful to match supply of new teachers to demand. The number of teacher education providers and programs matches the demand for new teachers. That numbers in training are consistent with the capacity of schools to provide high quality supervision and opportunities for clinical experience.

They have policies specifically directed at building the status of teaching and providing professional conditions of work (OECD, 2011). They ensure that teaching can compete with other professions for applicants from the top 30% of the age cohort, or higher, ensuring that all entrants can cope with the increasing intellectual demands of high quality teacher education programs.

High-achieving countries have more rigorous procedures for assessing and accrediting the quality of teacher education programs, based primarily on evidence about the knowledge and skills of graduates and their destinations.

These are the **enabling** conditions at the system level that need to be in place if Australia is to realise its potential to make best practice in teacher education common practice.

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## **APPENDIX 1: COUNCIL FOR ACCREDITATION OF EDUCATOR PREPARATION**

### **STANDARD 2: CLINICAL PARTNERSHIPS AND PRACTICE**

**(From CAEP Commission Recommendations to the CAEP Board of Directors)**

#### **STANDARD 2: CLINICAL PARTNERSHIPS AND PRACTICE**

The provider ensures that effective partnerships and high-quality clinical practice are central to preparation so that candidates develop the knowledge, skills, and professional dispositions necessary to demonstrate positive impact on all P-12 students' learning and development.

##### **Partnerships for Clinical Preparation**

2.1 Partners co-construct mutually beneficial P-12 school and community arrangements, including technology-based collaborations, for clinical preparation and share responsibility for continuous improvement of candidate preparation. Partnerships for clinical preparation can follow a range of forms, participants, and functions. They establish mutually agreeable expectations for candidate entry, preparation, and exit; ensure that theory and practice are linked; maintain coherence across clinical and academic components of preparation; and share accountability for candidate outcomes.

##### **Clinical Educators**

2.2 Partners co-select, prepare, evaluate, support, and retain high-quality clinical educators, both provider- and school-based, who demonstrate a positive impact on candidates' development and P-12 student learning and development. In collaboration with their partners, providers use multiple indicators and appropriate technology-based applications to establish, maintain, and refine criteria for selection, professional development, performance evaluation, continuous improvement, and retention of clinical educators in all clinical placement settings.

##### **Clinical Experiences**

2.3 The provider works with partners to design clinical experiences of sufficient depth, breadth, diversity, coherence, and duration to ensure that candidates demonstrate their developing effectiveness and positive impact on all students' learning and development. Clinical experiences, including technology-enhanced learning opportunities, are structured to have multiple performance-based assessments at key points within the program to demonstrate candidates' development of the knowledge, skills, and professional dispositions, as delineated in Standard 1, that are associated with a positive impact on the learning and development of all P-12 students.

#### **RATIONALE FOR STANDARD 2:**

Education is a practice profession and preparation for careers in education must create nurturing opportunities for aspiring candidates to develop, practice, and demonstrate the content and pedagogical knowledge and skills that promote learning for all students. These developmental opportunities/ experiences take place particularly in school-based situations, but may be augmented by community-based and virtual situations. The 2010 NCATE panel report, *Transforming Teacher Education Through Clinical Practice*, identified important dimensions of clinical practice and the Commission drew from the Panel's recommendations to structure the three components of this standard.

Educator preparation providers (EPPs) seeking accreditation should have strong collaborative partnerships with school districts and individual school partners, as well as other community stakeholders, in order to pursue mutually beneficial and agreed upon goals for the preparation of education professionals. These collaborative partnerships are a shared endeavor meant to focus dually on the improvement of student learning and development and on the preparation of teachers for this goal. The partners shall work together to determine not only the values and expectations of program development, implementation, assessment, and continuous improvement, but also the division of responsibilities among the various partnership stakeholders. At a minimum, the district and/or school leadership and the EPP should be a part of the partnership; other partners might include business and community members.

Characteristics of effective partnerships include: mutual trust and respect; sufficient time to develop and strengthen relationships at all levels; shared responsibility and accountability among partners, and periodic formative evaluation of activities among partners. Darling-Hammond and Baratz-Snowden call for strong relationships between universities and schools to share standards of good teaching that are consistent across courses and clinical work. This relationship could apply, as well, to all providers. The 2010 NCATE panel proposed partnerships that are strategic in meeting partners' needs by defining common work, shared responsibility, authority, and accountability.

Clinical educators are all EPP and P-12 school-based individuals, including classroom teachers, who assess, support and develop a candidate's knowledge, skills, and professional dispositions at some state in the clinical experiences. Literature indicates the importance of the quality of clinical educators, both school- and provider-based, to ensure the learning of candidates and P-12 students. *Transforming Teacher Education Through Clinical Practice* described high-quality clinical experiences as ones in which both providers and their partners require candidate supervision and mentoring by certified clinical educators—drawn from discipline-specific, pedagogical, and P-12 professionals—who are trained to work with and provide feedback to candidates. Clinical educators should be accountable for the performance of the candidates they supervise, as well as that of the students they teach.

High-quality clinical experiences are early, ongoing and take place in a variety of school- and community- based settings, as well as through simulations and other virtual opportunities (for example, online chats with students). Candidates observe, assist, tutor, instruct and may conduct research. They may be student-teachers or interns. These experiences integrate applications of theory from pedagogical courses or modules in P-12 or community settings and are aligned with the school-based curriculum (e.g., Next Generation Science Standards, college- and career-ready standards, Common Core State Standards). They offer multiple opportunities for candidates to develop, practice, demonstrate, and reflect upon clinical and academic components of preparation, as well as opportunities to develop, practice, and demonstrate evidence-based, pedagogical practices that improve student learning and development, as described in Standard 1.

The members of the 2010 Panel on clinical preparation and partnerships consulted both research resources and professional consensus reports in shaping their conclusions and recommendations, including proposed design principles for clinical experiences. Among these are: (1) a student learning and development focus, (2) clinical practice that is integrated throughout every facet of preparation in a dynamic way, (3) continuous monitoring and judging of candidate progress on the basis of data, (4) a curriculum and experiences that permit candidates to integrate content and a broad range of effective teaching practices and to become innovators and problem solvers, and (5) an "interactive

professional community” with opportunities for collaboration and peer feedback. Howey also suggests several principles, including tightly woven education theory and classroom practice, as well as placement of candidates in cohorts. An ETS report proposed clinical preparation experiences that offer opportunities for “Actual hands-on ability and skill to use . . . types of knowledge to engage students successfully in learning and mastery.” The report of the National Research Council (2010) concluded that clinical experiences were critically important to teacher preparation but that the research, to date, does not tell us what specific experiences or sequence of experiences are most likely to result in more effective beginning teachers.

Until the research base for clinical practices and partnerships is more definitive, “wisdom of practice” dictates that the profession move more forcefully into deepening partnerships; into clarifying and, where necessary, improving the quality of clinical educators who prepare the field’s new practitioners and into delivering field and clinical experiences that contribute to the development of effective educators.