

Enhancing the Quality of Teaching and Learning in Australian Schools

Submission to the Senate Inquiry on Teaching and Learning (maximising our investment in Australian schools) by Professor Geoff Masters, Chief Executive of the Australian Council for Educational Research (ACER), October 2012.

International research identifies several steps that governments can take to enhance the quality of teaching and learning, and thus levels of student achievement and wellbeing, in primary and secondary schools.

1. Restrict and raise the quality of student intakes to teacher education

A first strategy available to governments is to work to raise the status of teaching as a career. A number of countries have recognised the importance of this task and have succeeded – sometimes on relatively short timelines – in making teaching more attractive as a career, increasing competition for entry into teacher education courses and raising the overall quality of beginning teachers.

There are significant differences across countries in the status of teaching in the community. In Finland, teachers are held in high esteem, competition for entry into teacher education programs is strong and teachers are selected from among the highest-achieving school leavers. Almost all teachers in Finland complete a master's degree. In Australia, teachers tend to be recruited from the middle of the distribution of school leavers and there are increasing concerns about the low cut-off scores for entry into teacher education courses at some universities. Students often enter teaching as a fall-back, having failed to gain entry to their course of first choice.

International experience shows that government policies can change the status of teaching¹. In England, marketing and recruitment campaigns modelled on those used in business saw changes in public perceptions of teaching within five years. Finland enhanced the status of primary teaching relative to secondary teaching through small changes in salary levels that brought the remuneration of primary teachers into line with graduate salaries generally. (A conclusion of international comparisons is that salary levels influence the status of teaching only if they fall significantly below the salaries of graduates in other fields; increases in teachers' salaries beyond this level do not appear to have a marked impact on the status of teaching as a career.)

The same broad government policies to enhance the status of teaching appear to be effective across countries. Apart from ensuring adequate starting salaries, high-performing education systems:

- use rigorous processes to select entrants to teacher education; and
- control the numbers of students undertaking teacher education courses.

Singapore is an example of a high-performing country that uses rigorous criteria to select students for entry into teacher education programs. In Singapore, the Ministry of Education selects and employs prospective teachers before they commence teacher training. (In Australia, the employers of teachers no longer play a major role in selecting and preparing prospective teachers.)

¹ Barber, M. & Mourshed, M. (2007). *How the world's best-performing school systems come out on top*. London: McKinsey & Company.

The criteria that high-performing countries use to select students for entry into teacher education programs include:

- strong academic achievement;
- high levels of literacy and numeracy;
- strong interpersonal and communication skills;
- an openness to ongoing learning; and
- a passion for teaching.

High-performing systems *test* for these attributes. Selection mechanisms include performances on academic examinations and tests of essential skills such as literacy and numeracy.

In Australia, there are no generally agreed selection criteria of this kind. Instead, students tend to be selected primarily on the basis of their ENTER score (an aggregation of Year 12 results) and, as noted above, there is concern about how low cut-off ENTER scores have become for some teacher education courses. Special consideration for disadvantage can see students admitted with scores well below these advertised cut-offs.

A government response to this concern has been to set a target to have Australian teachers drawn from the 'top 30%' of school leavers. Although well intentioned, this is a blunt approach to improving the selection of teachers and falls well short of international best practice. Recently reported surveys of Australian parents, as well as anecdotal feedback from school leaders, reveal concerns about some beginning teachers' levels of commitment to teaching as well as their communication skills, including basic literacy and numeracy skills. If Australia aspires to be among the world's highest-performing nations in school education, it will need to learn from world's best practice in the selection of its teachers. This will mean developing clarity about the attributes sought in future teachers and testing for those as part of initial teacher education selection processes.

Another key to raising the status of teaching as a profession is to control more tightly the numbers of students being admitted to teacher education courses. Internationally, high-performing school systems such as Singapore and Finland control entry to teacher education so that supply more or less matches demand. These countries recognise that the oversupply of trained teachers has a negative impact on the status of teaching and also on teacher quality. A striking example of this can be found in South Korea where quite different mechanisms operate in relation to the training of primary and secondary teachers. The numbers admitted to primary teacher education are tightly controlled to ensure that supply more or less matches demand. This is not the case for the training of secondary teachers; many institutions train large numbers of secondary teachers with supply significantly outstripping demand. The consequence is a marked difference in the status of primary and secondary teaching in South Korea, in favour of primary teaching².

The admission of large numbers of students into teacher education courses not only leads to a situation where many graduates are unable to find employment (the case currently in some Australian states), but also can lower the quality of teacher preparation itself. As less able students undertake teacher training, the rigour of the courses themselves sometimes has to be reduced, with more attention being given to remedial teaching. A reduction in the number of teachers being trained also introduces the possibility of increasing per-student expenditure and enhancing the

² Barber, M. & Mourshed, M. (2007). *How the world's best-performing school systems come out on top*. London: McKinsey & Company.

quality of the teacher education experience (eg, through greater access to supervisors, in-school placements, etc).

International comparisons indicate that more rigorous selection processes and greater control over the numbers of students being admitted to teacher education have an impact on the quality of the student intake and on how students and the public perceive teaching as a career.

2. Set and confirm the achievement of minimum standards for registration

A second characteristic of high-performing education systems is that they place a high priority on ensuring that all teachers receive an excellent preparation to teach – in particular, that they develop high-level knowledge of the subjects they will teach (referred to as ‘content knowledge’) and high levels of knowledge about how students learn those subjects, including a familiarity with pre-requisite student knowledge and skills and common student errors and misunderstandings (referred to as ‘pedagogical content knowledge’). High-performing education systems recognise the vital importance of providing all teachers with an understanding of effective pedagogical practices.

In Australia, questions have been raised about whether all graduates of teacher education programs have adequate levels of content knowledge and pedagogical content knowledge. Student teachers’ literacy levels were raised as an issue in all of the focus groups conducted by the 2005 National Inquiry into the Teaching of Literacy: ‘Participants reported that many students lacked the literacy skills required to be effective teachers of reading. These students needed help to develop their foundational literacy skills’³. A similar observation was made by the 2008 National Numeracy Review: ‘Primary school teachers’ confidence and competence with mathematics are a cause for concern... It is important to describe what mathematics effective primary teachers need to know and use in sophisticated ways’⁴. Studies of science teaching reveal that only 44 per cent of Year 4 teachers feel ‘very well’ prepared to teach science⁵ and only 18 per cent of primary teachers believe they have ‘all the expertise needed’ to teach primary science⁶.

The challenge of ensuring that all teachers are well prepared can be met in part by setting national standards for the accreditation of teacher education programs – a task that has been given to the Australian Institute for Teaching and School Leadership (AITSL). The program standards developed by AITSL address criteria and conditions for entry to teacher education, program structure and content, as well as graduate outcomes. However, as AITSL itself notes, ‘it is the graduate *outcomes* of teacher education programs that matter and, ultimately, about which judgements of graduate quality must be made’.

The outcomes of higher education programs are of increasing interest internationally. Of particular interest is the comparability of outcomes across courses and institutions. How do the knowledge and skills of graduates from different institutions compare? Are the graduates of some institutions better prepared for the workplace

³ National Inquiry into the Teaching of Literacy. (2005). *Teaching Reading: Report and Recommendations*: Canberra: Department of Education, Science and Training.

⁴ National Numeracy Review (2008). *National Numeracy Review Report*. Canberra: Department of Education, Employment and Workplace Relations.

⁵ Thomson, S., Wernert, N., Underwood, C. & Nicholas, M. (2008). *TIMSS 07: Taking a Closer Look at Mathematics and Science in Australia*. Melbourne: Australian Council for Educational Research.

⁶ Angus, M., Olney, H. & Ainley, J. (2007). *In the balance: The Future of Australia’s Primary Schools*. Canberra: Australian Primary Principals Association.

than graduates of others? Are standards of graduates being maintained within an institution over time? The OECD recently conducted an international feasibility study for its Assessment of Higher Education Learning Outcomes (AHELO). The purpose of that study was to explore the feasibility of assessing and comparing internationally what university students know and can do upon graduation (eg, from economics and engineering courses).

In many professions, graduates are required to demonstrate that they meet minimum standards of knowledge and skill prior to being registered to practice. These assessments often are conducted by the profession itself and are independent of university course assessments. The purpose is to maintain standards within the profession and to provide public assurance that registered practitioners meet minimum standards of practice.

Many countries use assessments of this kind to confirm that teachers meet minimally acceptable standards of knowledge and skill prior to registration. For example, in England, qualified teacher status (QTS) tests of numeracy, literacy and information and communications technology were introduced a decade ago following concerns that teacher training was not providing a sufficient grounding in the basics. All teachers in England must pass these tests before they can be recommended for the award of qualified teacher status by their initial teacher training provider. In the United States, tests are used both on entry to teacher education programs and at the point of registration to practice. Universities in many states use the *Praxis I: Pre-Professional Skills Tests* to measure the reading, writing and mathematics skills of applicants to teacher education programs. *Praxis II: Subject Assessments* are used as part of the teacher registration process in almost all states to assess content knowledge as well as general and subject-specific teaching skills and knowledge.

At this time, no national or state assessments are conducted in Australia to confirm that beginning teachers meet minimum standards of basic skills such as literacy and numeracy or minimally acceptable levels of pedagogical content knowledge. Following a review and recommendation that assessments of this kind be introduced in Queensland, online tests of content and pedagogical content knowledge in literacy, numeracy and science were developed and used on a pilot basis in that state⁷. If tests of this kind were generally available, prospective teachers could demonstrate that they met required standards of essential skills at any time – before, during or after completion of initial teacher education. It is understood that the wider use of such tests in Australia is currently under ministerial discussion.

The introduction of national assessments of teacher competence along the lines of the English QTS or the US *Praxis* tests would be an important step in ensuring that every beginning teacher meets minimally acceptable standards of essential skills before being registered to teach.

3. Recognise and reward the development of specialist knowledge and skill

Much is now known about highly effective teaching practices. Although there is no single teaching method that is effective in every situation, and expertise as a teacher depends on a repertoire of teaching methods and the ability to tailor teaching to specific situations and student needs, there are some broad characteristics of highly effective teaching. For example, highly effective teachers create supportive learning

⁷ Masters, GN (2009). *A Shared Challenge: Improving Literacy, Numeracy and Science Learning in Queensland Primary Schools*. Melbourne: Australian Council for Educational Research.

environments in which all students are emotionally engaged and motivated to learn; they establish starting points for teaching by first exploring where individuals are in their learning and development; make explicit to students what they are expected to learn; design learning opportunities to address the needs of students who are at different points in their learning; connect new material to past learning and assist students to see continuity in their learning over time; promote deep learning by emphasising underlying principles, concepts and big ideas; demonstrate explicitly what students are to do and check that learning is occurring; take advantage of teaching and learning opportunities as they arise; provide ongoing feedback to students on their learning; and promote positive student beliefs about their own capacity to learn.

Beyond general strategies of this kind, much also is known about the nature of expert teaching within particular subjects or learning areas. For example, expert teachers of reading have deep, research-based understandings of how children learn to read, including an appreciation of the importance of developing foundational reading skills; expert mathematics and science teachers have deep understandings of how mathematical and scientific understandings are developed and of the kinds of misconceptions that students commonly develop as they learn. Specialist teachers of this kind use their subject-specific pedagogical knowledge to establish where individuals are in their learning, to diagnose the specific problems students are encountering and to provide appropriate feedback and guidance to support further learning.

Thus a third general strategy for improving the quality of teaching and learning in Australian schools is to recognise and reward the development of high-level pedagogical knowledge and skill. This strategy depends on clarity about the nature of highly effective teaching, continual professional development in the implementation of evidence-based practices, and processes for recognising and rewarding expert teaching.

The task of clarifying and disseminating what is known about best-practice teaching goes beyond the generic AITSL teaching standards to the identification of effective, detailed pedagogical practices – often specific to the learning of particular subject matter. There is now a substantial body of international research into effective teaching practices and comprehensive syntheses of this research⁸. The Australian Government's new Science of Learning Research Centre is being established to contribute to this body of evidence. The Centre will bring together education professionals and researchers in areas ranging from neuroscience and cognitive development to pedagogy and educational technology to explore how advances in learning research can be used to support more effective teaching practices.

Improved teaching and learning in all Australian classrooms will depend on the ongoing development of teacher expertise in applying effective, evidence-based teaching practices. The Master of Teaching program at the University of Melbourne is an example of a clinical program that builds teachers' skills in assessing and diagnosing individual learning needs and in applying evidence-based strategies to address student needs. The Australian Council for Educational Research's graduate-level, research-based courses in the teaching of reading, the teaching of mathematics and the assessment of student learning are other examples.

⁸ Hattie J (2009). *Visible Learning; a synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.

At the present time, there are few formal incentives for practicing teachers to continue to develop their teaching expertise in the areas in which they teach. In fact, to progress in their careers, experienced teachers usually begin spending less time teaching and more time on school leadership and administration. (Teachers often reach a pay ceiling after a decade or so of teaching, adding a further incentive to move out of the classroom into other school-based roles or on to other careers.)

High-performing education systems understand the importance of keeping excellent teachers in the classroom, continually building teachers' pedagogical knowledge and skills, and recognising and rewarding expert practice. In Australia, various schemes have been introduced to recognise 'advanced skills' teachers, however the processes used to identify these teachers tend to have lacked rigour and have not always required the demonstration of high levels of specialist knowledge and skill.

A first challenge is to find ways of recognising teachers who achieve high levels of expertise in the fields in which they teach (eg, primary teaching; the teaching of reading; secondary science teaching). The development of clarity about the nature of expert teaching in areas of specialisation is an essential first step and would provide teachers with high standards to which they could aspire. Standards of this kind are used in other professions to define and recognise expert knowledge and practice (eg, the Accredited Specialist program of the Law Institute of Victoria; specialist certification by the US National Board for Professional Teaching Standards).

A second challenge is to find ways of ensuring that teachers who achieve high standards of knowledge and practice are recognised through employment arrangements (remuneration levels, opportunities for advancement, etc). These are matters for the employers of teachers; however, teaching expertise is likely to be more effectively recognised and promoted through ongoing employment arrangements than through one-off recognition schemes (eg, 'best-teacher' awards; annual performance bonuses).