



THE AUSTRALIAN

THE HEART OF THE NATION

Remedying our skills shortage

The economy needs more maths and science expertise

AT a period of transition in education with the implementation of the national curriculum, Australia's Nobel prize-winning physicist Brian Schmidt has sounded a timely warning about the shortage of competent maths and science graduates. The nub of the problem, as Professor Schmidt identified this week, is the skills shortage in the teaching profession, which has left too many students who are willing and able to excel at maths under the guidance of teachers without the proficiency to teach the subject. The problem, Professor Schmidt correctly pointed out, is not the teachers' fault but the result of deep-seated problems in Australia's education system. Such failings are already impeding productivity and living standards as resources companies and other industries struggle to find engineers and maths graduates.

Labor has made progress implementing national literacy and numeracy testing, and transparent reporting of students' results, and encouraging merit pay for the best teachers and instigating the national curriculum. But OECD figures showing that improvements in Australian education standards are not keeping pace with those of Korea, Singapore, Japan and the Chinese city of Shanghai leave no room for complacency.

The reform process must not slacken off if maths and science enrolments are to be lifted to the levels needed by the wider economy. Curriculum quality and teaching standards will be two of the main keys to success, with Australia's chief scientist Ian Chubb due to present Julia Gillard with a set of recommendations about how to boost participation in science and maths courses at a time when students have a wide range of subject choices. At the top

end of the scholarship ladder, Australia has a strong record in science and innovation, with a succession of Nobel prize-winning scientists attesting to how their school teachers inspired their interest in the subject. Today's students deserve similar-quality teaching, including those in schools in poorer socio-economic areas, whom OECD research shows are often disadvantaged in science, maths and reading. Well-targeted investment of resources is important, but extra funding alone will not resolve the issue. Education authorities and curriculum planners need to be selective about how resources are spent and, especially, what is taught both in school classrooms and in university courses training future teachers. Opposition education spokesman Christopher Pyne raised a valid point when he advocated paying greater attention to improving the knowledge of students rather than training them in skills that could become obsolete amid rapidly changing technology. English lessons focusing on text messaging and blogging, for example, will be of less enduring value than studying Dickens.

As Mr Pyne said, it's "terribly unfashionable" to talk about a knowledge-based education. This is not only because of the popularity of vocation-style courses in many secondary schools, many of which are useful options, but also because many academic courses encourage students to form opinions before they have acquired a deep knowledge of their subjects. If Australia is to succeed economically, schools must teach the "basics" of maths, science and other rigorous subjects as well as advanced knowledge and concepts in preparation for university. Great teachers make all the difference.