



Australian Government

Chief Scientist

Mr Andrew Laming MP
Chair
House of Representatives Standing Committee on Employment, Education and Training
PO Box 6021
Parliament House
CANBERRA ACT 2600

Dear Mr Laming

Re: Inquiry into the status of the teaching profession

I welcome the opportunity to provide the following observations in response to the inquiry's terms of reference.

In April 2018, I presented to the COAG Education Council the final report of the STEM Partnerships Forum, *Optimising STEM Industry-School Partnerships: Inspiring Australia's Next Generation* ([attached](#)). The Report was the result of the Forum's work over the prior 12 months, including extensive national consultations with over 150 people attending meetings and 53 written submissions received.

Amongst the principles that guided the Forum's deliberations were an appreciation for the role of principals and other school leaders, the centrality of teachers, and the importance of clear objectives and measurable impact. Many of the report's findings and recommendations are relevant to this inquiry.

The Forum found that industry requires a highly capable pipeline of graduates with STEM skills. To achieve this the teaching of STEM disciplines must be engaging to students at all school levels. All jurisdictions require teacher professional learning to align to the Australian Professional Standards for Teachers, but there is no national requirement for teachers of STEM subjects to undertake a minimum amount of professional learning in discipline specific content and pedagogy, delivered by an accredited provider such as a university, TAFE or other registered training provider.

The specific recommendations of relevance to this inquiry are:

Recommendation 3

Education Council should develop minimum national requirements for teacher professional learning, a proportion of which should include relevant, discipline specific professional learning from an accredited provider, that must be satisfied in order to retain ongoing registration as a primary or secondary teacher.

Recommendation 4

Education authorities should support principals and lead teachers to engage with industry and other partners to develop and implement high quality, contemporary professional learning materials and teaching practices in mathematics, science and technology. These should include particular support for:

- a. principals and other school leaders,
- b. teachers working outside their main discipline, and
- c. teachers in rural and remote communities with limited travel and broadband access.

We can learn much by identifying and analysing best practice in teaching, here in Australia and internationally. Research undertaken by the Australian Council of Learned Academies in 2013, for example, identified a set of common features found in countries with strong STEM education outcomes.¹ In these countries, teachers enjoy high esteem, are well paid and undertake discipline specific professional learning. In secondary schools, all teachers are expected to be fully qualified in their disciplines.

While the observations and recommendations in the *Optimising STEM Industry-School Partnerships* and the ACOLA report were directed at STEM teaching, common sense and the statements by many with whom we consulted would suggest that the observations and recommendations are broadly relevant, well beyond the STEM disciplines.

In July 2018, the Office of the Chief Scientist released an occasional paper, 'Improving the mathematics performance of Australia's students', drawing on research commissioned from a consortium of universities, led by the University of Tasmania.² More than 600 schools were identified that showed a significant improvement in NAPLAN numeracy scores over a two year period.

The research project found several common factors that might account for this improvement. The schools had principals and senior leaders who understood and valued mathematics and who included their heads of mathematics in policy decisions. Most incorporated formal, in-school, discipline-specific professional learning, and had teachers who were confident in their subject and were enthusiastic about their teaching practice.

As a nation, we must elevate our commitment to teaching as a profession. In a recent speech to the Mathematical Association of Victoria, I suggested that we should have the same expectations of registration and professional learning requirements for the teaching profession, as we do for engineers, doctors and lawyers.³ We need to ask, 'what more could the system be doing to support our teachers?', while ensuring that all teachers are provided with the appropriate opportunities, time and resources to allow them to keep improving and reflecting upon their practice.

Thank you again for the opportunity to share my views on this important issue. I would be pleased to provide any further advice.

Yours sincerely,

Dr Alan Finkel AO

18 December 2018

¹ Australian Council of Learned Academies. (2013). STEM: Country Comparisons, International comparisons of science, technology, engineering and mathematics (STEM) education. Available from <https://acola.org.au/wp/project-2/>

² Smith, P., et al. (2018). Improving the mathematics performance of Australia's students. Office of the Chief Scientist occasional paper. Available from <https://www.chiefscientist.gov.au/2018/07/occasional-paper-improving-the-mathematics-performance-of-australias-students/>

³ Finkel, A. (2018). The prerequisite for success. Keynote address, Mathematical Association of Victoria, La Trobe University, 7 December 2018. Available from <https://www.chiefscientist.gov.au/2018/12/speech-the-prerequisite-for-success/>