



Public submission made to the Review to Achieve Educational Excellence in Australian Schools

Submitter: The Science of Learning Research Centre, a Special Research Initiative of the Australian Research Council (slrc.org.au)
Submitting as a: Academic person or institution
State: Qld.

Summary

SCIENCE OF LEARNING RESEARCH CENTRE (A SPECIAL RESEARCH INITIATIVE OF THE AUSTRALIAN RESEARCH COUNCIL)

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SUMMARY

The Science of Learning Research Centre (SLRC) was established as a Special Research Initiative by the ARC in 2012/13 to improve learning through scientifically validated learning tools and strategies. The SLRC welcomes the focus of the Issues paper on learning – both what students learn and how they learn. Understanding how students learn is necessary for achieving educational excellence. Over the past four years, the SLRC has brought researchers in education, psychology and neuroscience together to increase the scientific knowledge base around learning, and to translate that knowledge into Australia's classrooms. We are pleased to provide our input for the Review to Achieve Educational Excellence in Australian Schools. In this submission, we highlight the following features as necessary steps in Australia's effort to achieve educational excellence in its schools:

- A need to align assessment and curriculum goals with what is valued outside of the school environment (i.e. in higher education, workplace and society);
- A joint focus on acquiring essential curriculum knowledge as well as acquiring the skills needed to facilitate learning, complex reasoning and conceptual thinking;
- A mechanism to ensure that the evidence as to what works in classrooms is implemented at scale in schools. This will require funding frameworks that promote and

facilitate
ground-up collaborations between researchers and teachers , with close
involvement from
education departments and policy makers;

- A central authority tasked with commissioning and evaluating research into the education evidence base. This body, semi-independent from state and federal governments, would link schools with research-backed evidence, while also providing state and independent schools sector organisations resources and advice for implementation.

Main submission

SUBMISSION TO THE REVIEW TO ACHIEVE EDUCATIONAL EXCELLENCE IN AUSTRALIAN SCHOOLS

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- A need to align assessment and curriculum goals with what is valued outside of the school environment (i.e. in higher education, workplace and society);
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WHAT SHOULD EDUCATIONAL SUCCESS FOR AUSTRALIAN STUDENTS AND SCHOOLS LOOK LIKE? WHAT CAPABILITIES, SKILLS AND KNOWLEDGE SHOULD STUDENTS LEARN AT SCHOOL TO PREPARE THEM FOR THE FUTURE?

Successful learning requires students to gain powerful content/domain knowledge and, concurrently, to develop learning skills. Each student’s development should incorporate not just what to learn but also an understanding of how to learn, enabling insight for the individual into their own learning. This includes development of skills in areas including:

- metacognitive awareness and self-regulation;
- critical thinking;
- social and emotional skills for collaborative and independent problem solving;
- interpersonal communication skills; and
- flexibility, resilience and the ability to adapt to change

The SLRC strongly recommends that students should develop these learning skills concurrently with content knowledge. The SLRC does not advocate teaching these skills separately via the addition of separate, new competencies to curricula.

HOW SHOULD SCHOOL QUALITY AND EDUCATIONAL SUCCESS BE MEASURED?

It is vital that assessment tools and methodologies are evidence-based and scientifically validated. Further, it is critical that the factors measured via assessment are well aligned with the educational outcomes that are sought. A criticism levelled at some existing assessment schemes is that they are weighted heavily toward assessing content knowledge rather than toward what our education is claimed to

value; namely skills, conceptual thinking, and complex reasoning. Any assessment system sends powerful messages to teachers and students, affecting what is taught, how it is taught, what students deem valuable, and consequently what is learnt. If assessment does not align with desired outcomes then these outcomes will not be achieved.

The SLRC suggests that the Australian education system needs to be clear about what the desired outcomes for education are, and that frameworks of assessment must be aligned with the defined outcomes. Specifically, the SLRC argues that learning, reasoning and critical thinking skills be assessed alongside curriculum knowledge through intertwined and contextualised assessment. Measuring these abilities may be more difficult than assessing content knowledge, and it will be important that these measurements are based on strong evidence and rigorously implemented. Nevertheless prioritising the acquisition of such capabilities will give students broader skills in the less structured and more complex learning environment of higher education, in vocational education and training, and in their future employment.

WHAT CAN WE DO TO IMPROVE AND HOW CAN WE SUPPORT ONGOING IMPROVEMENT OVER TIME? WHAT ACTIONS CAN BE TAKEN TO IMPROVE PRACTICE AND OUTCOMES? WHAT EVIDENCE IS THERE TO SUPPORT TAKING THESE ACTIONS?

The development, acceptance and implementation of evidence-informed practice is key to expediting significant improvement in learning outcomes in Australia and around the world. A major challenge, however, is how to make the research findings that form the evidence base available and actionable for the 9,000 plus schools and nearing 400,000 teachers in Australia. This challenge was highlighted by the Productivity Commission's 2016 Inquiry into the Education Evidence Base(1), the final report of which identified a major gap in Australia's education evidence base as being around "building an understanding for how to turn best practice into common practice on the ground"(2).

In order to achieve this, research questions must align with the problems facing schools and practitioners; researchers and practitioners must co-create new knowledge and policy-makers must be closely involved, all to ensure that research findings become actionable.

Typically in education, the identification, sharing and implementation of evidence-based good practice is at the instigation of the researchers. However, without effective means of translating evidence into practice, research findings remain underutilised, in terms of informing practice(3). Indeed, over the course of the SLRC a number of strategies have been developed and trialled, ready to be implemented at the classroom level. The absence of existing pathways to impact has led the

Centre to investigate models for the sharing and implementation of evidence-based and impactful practice.

The SLRC recommends that for actionable results, an approach that prioritises researchers, educators and those near educational policy working together is required. This call is echoed in international literature, with a recent paper by Stafford-Brizard, Cantor and Rose stating that : "The absence of a bridge to connect science and practice leaves a large chasm, which holds back not only innovation and transformation of educational practice, but progress in the fields of science as well"(4).

Research translation, to ensure impact from research outcomes, is core to the SLRC's vision. The SLRC has a strong research translation focus, defined by close engagement and collaboration with education departments, independent education sector bodies and directly with schools. The SLRC Partner Schools program is one example of a promising framework to achieve the goal of collaboratively developed, actionable research outcomes with a clear pathway to impact. The SLRC Partner Schools program brings two-way collaboration between SLRC researchers and clusters of linked schools. School leadership teams work with researchers to identify and articulate particular challenges within their schools, and SLRC researchers bring current knowledge and research evidence from neuroscience, psychology, and education to those issues. Schools and researchers then work together to develop and implement strategies and interventions as appropriate.

While the SLRC Partner Schools program remains a pilot initiative, we are encouraged by the enthusiasm from all parties involved. To achieve a collaborative approach at a national level, the SLRC recommends establishing a specific fund for research and translation of the science of learning into classrooms. Our experience thus far suggests that a collaborative and integrative approach makes a substantive difference to the way teachers and school leaders think about their roles, their teaching practice, and what they choose to focus on (i.e. learning strategies as well as developing student knowledge).

The call for an effective 'bridge' between science and educational practice is not new(5), but its continued importance was highlighted by Stafford-Brizard, Cantor and Rose (2017), who noted that: "As knowledge emerging from science continues to increase at an exponential rate, the cost of failing to bridge the fields of science and practice and tap into this knowledge on behalf of educational practice will grow exponentially as well."

WHAT INSTITUTIONAL OR GOVERNANCE ARRANGEMENTS COULD BE PUT IN PLACE TO ENSURE ONGOING IDENTIFICATION, SHARING AND IMPLEMENTATION OF EVIDENCE-BASED GOOD PRACTICE TO GROW AND SUSTAIN IMPROVED STUDENT OUTCOMES OVER TIME?

The Productivity Commission’s Education Evidence Inquiry report recommended establishment of a “national evaluative research framework which is accountable to, and funded by, all governments”. It recommended creating an entity charged with driving strategically guided evaluative research and with ensuring the quality and veracity of research. The report recommended the Australian Curriculum, Assessment and Reporting Authority (ACARA) as the appropriate entity, through expansion of its remit to include responsibility for:

- “development of research priorities
- commissioning of high quality education research
- adoption of rigorous research quality control processes
- development of researcher capacity
- translation, communication and implementation of high quality evidence.

In addition, the institution should be responsible for:

- promoting a culture among policy makers and educators of applying the evidence base
- establishing co operative partnerships between research institutes, schools and ECEC providers, and educators, as a means to achieve engagement and buy in
- establishing co operative partnerships with private philanthropic organisations, both in Australia and overseas, to leverage the growing interest and support for generating and applying high quality evidence in education
- keeping researchers informed about potentially useful administrative and research datasets.”

The SLRC supports the concept of a coordinated approach to research and policy and supports the concept of establishing an entity to be Australia’s education ‘evidence hub’. Under our vision, the evidence hub would be the clearing-house for education evidence in Australia and would be responsible for the development and maintenance of education resources and advice to state authorities and others. The evidence hub would be responsible for implementing a research strategy by commissioning research from universities and organisations such as the Australian Council for Educational Research. The evidence hub would form a vital link between research organisations, state and federal departments of education, and other entities to maximise research impact.

Contrary to the Productivity Commission however, the SLRC does not support ACARA as the appropriate entity to take on this responsibility. Instead, the SLRC recommends that an independent entity be established, seeing independence as the best way to maximise support and engagement across jurisdictions and between education sectors. A potential funding model that the SLRC recommends exploring is that of AgriFutures, the former Rural Industries Research and Development Corporation. The education and agriculture sectors have similarities in that both comprise large numbers of diverse, autonomous and semi-autonomous entities. AgriFutures is an industry-facing organisation with credibility through independence and a levy-based funding model, which could be replicated within the education sector for the purposes of funding strategic research and for maintaining and disseminating evidence-based advice to end users.

The SLRC believes the evidence hub should operate semi-independently from both state and federal governments. The entity must be deeply engaged with the education sector and attuned to the requirements of employers and higher education institutions. The SLRC considers that an evidence hub would take responsibility for gathering research outcomes and data from other sources as an education evidence base. The evidence hub would be responsible for maintaining the currency of that evidence base, for developing end-user resources to support implementation and providing advice. The evidence hub would also develop and implement a research strategy, funding research in areas of challenge to the education system and education practice. State education authorities, curriculum authorities and independent sector entities would be responsible for implementing evidence-based change within the system, for evaluating the implementation and for reporting effectiveness back to the evidence hub to further inform the evidence-base.

ARE THERE BARRIERS TO IMPLEMENTING THESE IMPROVEMENTS?

One of the barriers to implementing evidence based improvements in education is in the translation of research findings to classroom reality. Australia is at the forefront of learning and education research with the Universities of Melbourne and Queensland performing at 'well above international standards' in recent Excellence in Research Australia processes. However, there is no clear path for the translation of research findings to the classroom. Research findings need to be made actionable, whilst retaining integrity of the research, in order to have an impact on student learning – the ultimate goal. The SLRC considers that close engagement between researchers and education authorities and schools is key and, to that end has implemented a research program directed at research translation, collaborating with state education departments, schools and teachers to transform evidence-based findings into actionable, sustainable and scalable practice in the classroom. Scaling that level of engagement and collaboration to a national level is challenging but

should be an aim of the education system. The SLRC therefore recommends establishment of an evidence-hub entity with national reach that is independent of state or federal governments and which is highly engaged with the sector as an important step toward addressing this barrier.

REFERENCES

- 1) Final report made publicly available on 24 May 2017 and available at: <http://www.pc.gov.au/inquiries/completed/education-evidence#report>
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