

# National Advocates for Arts Education (NAAE)

Submission to the  
*Inquiry into innovation and creativity:  
workforce for the new economy*

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## Introduction

The National Advocates for Arts Education (NAAE) welcomes the opportunity to make a submission to the *Inquiry into innovation and creativity: workforce for the new economy*.

The NAAE is a coalition of peak arts and arts education associations who represent thousands of arts educators across Australia. NAAE members are: Art Education Australia (AEA), Australian Dance Council – Ausdance, Australian Society for Music Education (ASME), Australian Teachers of Media (ATOM), Drama Australia, Music Australia, National Association for the Visual Arts (NAVA) and The Music Trust (observer).

To create a workforce that is both innovative and creative, the NAAE strongly argues that the Committee extends beyond the original Terms of Reference to include school education as part of the focus of the inquiry, with deep emphasis on senior schooling as a direct articulation into the tertiary environment. Curriculum and pedagogy in schools will inform the extent to which students are graduating from tertiary courses with the skills needed for the jobs of today and for the future.

The NAAE refers to ‘The Arts’ as a key learning area in the Australian Curriculum, which contains five discrete subjects: Dance, Drama, Media Arts, Music and Visual Arts. In senior secondary schooling across Australia, jurisdictions cater for separate art forms syllabuses for Art (including Visual Art and Design), Dance, Drama (including Theatre Studies), Music and Media (including Film and Screen Studies). They retain art form syllabus specificity by maintaining discrete syllabuses for each arts form, and they are implemented by each Australian state and territory educational authority following agreement by the Council of Australian Governments (COAG) in July 2013.

Engagement in the five arts areas listed above provide a clear articulation for students wishing to pursue the arts through tertiary study at major Australian universities and conservatoires; it should also be noted private providers offer courses in some stand-alone art forms. Increasingly, a number of Australian universities, TAFEs and private providers (e.g. Queensland University of Technology, Victoria University, RMIT, JMC Academy, Southbank Institute of TAFE) offer innovative “boundary spanning” transdisciplinary programs that have leanings towards STEAM (Science, Technology, Engineering, Arts and Mathematics) and business.

## Background

In a political environment which espouses innovation and 21<sup>st</sup> Century capacities such as collaboration, problem-solving, critical thinking, imagination, communication, agility and empathy, the experiences and learning that a properly implemented Arts curriculum offer are profound. The Arts provide the logical conduit through which these capacities and related skills, in both the social and emotional domains, can be developed.

A number of reports (see [The Heart of the Matter 2013](#); [Humanities Graduates and the British Economy: The Hidden Impact 2013](#); [Australia’s Future Workforce? CEDA 2015](#)), argue that creativity and innovation will be key to 21<sup>st</sup> Century economies, particularly in developing responses to multi-perspective or ‘wicked problems’ (Rittel and Weber 1973).

These reports note that in the knowledge economy, new workplace skills and the fostering of an innovative, agile and robust workforce will prove to be vital to national and

international creative economies. To date emphasis has been centred on STEM disciplines (Science, Technology, Engineering and Mathematics) at both school and tertiary levels. However, increasing demand and realisation of the need for creativity and innovation has resulted in recognition that many more disciplines have an essential role to play. This is evidenced by the rise in transdisciplinary engagement across arts, design and science within education and industry.

The Arts provide high levels of suitability for 21<sup>st</sup> century skills related to workforce transition for all subjects in most areas, and this should be recognised, written into and promoted in the syllabus documents. In particular, both national and international jurisdictions emphasise the importance of the Arts in developing collaboration and teamwork and personal and social skills. If it is a requirement that 21<sup>st</sup> Century skills are explicitly assessed, it is recommended that this forms part of the school-based assessment regime. Application of external assessment practices is more easily applied to the skills of critical thinking and communication (written).

In a review undertaken for the re-visioning of the arts subjects in senior secondary education in Queensland (Gattenhof and Dezuanni, 2016, p. 35), the Queensland Curriculum and Assessment Authority (QCAA) has determined a set of 21<sup>st</sup> Century skills that reflect current educational trends in which creativity and innovation – as well as the communication of these outcomes – are key drivers within curriculum development.

21 <sup>st</sup> century skills	Elements
Critical thinking	analytical thinking problem solving decision making reasoning reflecting and evaluating intellectual flexibility
Creative thinking	innovation initiative and enterprise curiosity and imagination creativity generating and applying new ideas identifying alternatives seeing or making new links
Communication	effective oral and written communication using language symbols and texts communicate ideas effectively with diverse audiences
Collaboration and teamwork	relating to others (interacting with others)

	<p>recognise and utilise diverse perspectives</p> <p>participating and contributing</p> <p>community connections</p>
Personal and social skills	<p>adaptability/flexibility</p> <p>management (self, career, time, planning and organising)</p> <p>character (resilience, mindfulness, open- and fair-mindedness, self-awareness)</p> <p>leadership</p> <p>citizenship</p> <p>cultural awareness</p> <p>ethical (and moral) understanding</p>
ICT skills	<p>operations and concepts</p> <p>accessing and analysing information</p> <p>being productive users of technology</p> <p>digital citizenship (being safe, positive and responsible online)</p>

## Why STEAM?

The National Advocates for Arts Education (NAAE) is concerned by the Australian Government’s almost exclusive focus on STEM (Science, Technology, Engineering and Mathematics) education, while pursuing a national innovation agenda which has, to date, excluded The Arts. The NAAE strongly advocates for the inclusion of The Arts in STEM to create STEAM (Science, Technology, Engineering, Arts and Mathematics).

The rationale for STEM is drawn from the argument that STEM subjects will provide Australian children with the important aspects of education that will make them competitive and successful in a global economy. Some research has illustrated that up to 75% of fast growing occupations will require STEM skills in the future (PwC, 2015).

In Australia, [The Melbourne Declaration on Educational Goals for Young Australians](#) explicitly discusses the importance of **creativity** in learning through Goal 2, by stating that “all young Australians become successful learners, confident and creative individuals, and active and informed citizens” (MCEECDYA, 2008, p. 8).

A recent Oxford University study by Frey and Osborne, [The Future of Employment: How susceptible are jobs to computerisation?](#) examined 702 occupations and found that 47% of employment is at risk (Frey and Osborne 2013). They concluded by stating that “as technology races ahead, low-skill workers will reallocate to tasks that are non-susceptible to computerisation – i.e., tasks requiring creative and social intelligence. For workers to win the race, however, they will have to acquire creative and social skills” (2013, p. 45).

As Professor Peter Charles Taylor, Professor of STEAM Education at Murdoch University states, “STEAM education is not in opposition to STEM education; it enriches and expands the scope of STEM education” (Taylor, 2016).

Professor Michael Anderson from the University of Sydney recently made a case for STEAM in his ACSA keynote, stating three key reasons:

1. The arts provide context, depth, matter and method when integrated within STEM learning.
2. The arts and STEM are not indistinct. Skills core to the arts such as design, discipline, creativity, improvisation, innovation are all necessary in STEM.
3. The arts are critical to the development of the 4Cs which underscore all 21<sup>st</sup> Century learning: Creativity, Communication, Critical Reflection and Collaboration. (Anderson, 2016)

Countries such as China, Wales, France, South Korea and The United States of America all recognise the importance of creativity and innovation, and that it is these skills that will help their citizens become competitive in a global market. According to White, the United States, Korea and China have begun producing STEAM curricula (White, 2010).

While STEAM research is relatively new, Taylor asserts that “early research studies on ground-breaking STEAM curricula in the US have demonstrated that learning activities integrating science, technology and the arts successfully engage minority and disadvantaged students, resulting in improved literacy and numeracy competencies”. (Clark, 2014; Stoelinga, Silk, Reddy & Rahman, 2015).

## **STEAM and the Australian Curriculum**

The Australian Curriculum (which includes an entitlement for The Arts in the education of all young Australians) outlines seven general capabilities. “The general capabilities play a significant role in the Australian Curriculum in equipping young Australians to live and work successfully in the twenty-first century” (ACARA 2016). The general capabilities are Literacy, Numeracy, ICT Capabilities, Critical and Creative Thinking, Personal and Social Capabilities, Ethical Understandings and Intercultural Understandings, with the aim of developing “successful learners, confident and creative individuals, and active and informed citizens” (ACARA, 2016). Including The Arts to create a STEAM education agenda would ensure that all of the general capabilities in the Australian Curriculum are addressed through STEAM learning.

## **The Research**

If young Australians are to be creative and innovative, we must ensure that they have access to a quality Arts education. Each Arts subject promotes different approaches to creativity, innovation, collaboration, problem solving, critical thinking and communication, and helps young people become more successful learners.

Australian and international research has continued to show the multitude of benefits that The Arts can have on student academic and non-academic outcomes (Fleming, Gibson & Anderson, 2016; Martin et al, 2013; Winner et al., 2013; Catterall et al., 2012; Ewing, 2010; Bamford, 2006; Catterall, 2002; Deasy, 2002; Eisner, 2002; Fiske, 1999).

The Arts don't only foster the development of artistic skills for art making – we reinforce the fact that they also teach skills in collaboration, innovation, experimentation, resilience, confidence and communication. Recent Australian research has found that students who engage in The Arts do better academically in their non-Arts subjects (like English, Mathematics and Science) than those students who do not participate in The Arts (Martin et al., 2013).

In 2013 The Organisation for Economic Cooperation and Development (OECD) published an extensive review of Arts education. The report focused on the relationship between The Arts and Innovation. The report found that “arts graduates are likely to have the complex set of skills that are useful in highly innovative occupations ... innovation usually tends to focus on skills in science and engineering. However, artistic skills are often involved in the innovation process. The analysis of two international databases of tertiary education professionals (Reflex and Hegesco) by Avvisati, Jacotin and Vincent-Lancrin (2013) shows that arts graduates are among the most likely to have a highly innovative job five years after graduation. Fifty-four percent of arts graduates have a highly innovative job dealing with some type of innovation. They rank second for product innovation, and they come fifth and seventh for innovation of technology and innovation of knowledge.” (Winner 2013, p. 17). This study also suggested that The Arts “develop a bundle of skills that matter for innovation.” (Winner 2013, p. 18).

One of the contemporary issues around providing evidence of impact or even models for STEAM approaches to education is that there is currently a paucity of research available at this point about STEAM engagement by students at all levels of learning. The education sector across all levels (early childhood, primary, secondary and tertiary) is only at the beginning of thinking and researching about how arts infused STEM might be more impactful in schooling.

A corollary to the issue of documentation and evaluation is the urgent requirement for educational authorities to rethink curriculum design and pedagogical approaches to enable STEAM activation. This is not so much an issue in primary school where for many years teachers have adopted a ‘theme’ approach to learning resulting in transdisciplinary engagement in knowledge and processes, but such an approach (that is, a transdisciplinary approach which is what STEAM is) is not embraced in senior secondary schools in the main. Some schools have adopted a project-based learning approach (see the International Baccalaureate that does this well) but most senior syllabuses and pedagogical approaches are wedded to siloed learning with discrete subject areas. Therefore attention to transdisciplinary approaches for teaching and learning are required (see for example Finland’s approach replacing ‘subjects’ with ‘topics’).

### Concluding remarks

If Australia wants to be competitive in the 21<sup>st</sup> Century global economy, STEM education is important, but it can also limit the scope and depth of learning. Including The Arts in STEAM education will foster increased creativity, innovation and critical thinking, and provide limitless opportunities for young Australians to solve the big problems of the 21<sup>st</sup> Century.

The NAAE strongly recommend that The Arts, with a particular emphasis on arts experiences in senior secondary schooling, be included as a central component of the innovation and creativity agenda.

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