

STEM Education Brainstorming Workshop

The Royal Society of Queensland and

The Office of the Queensland Chief Scientist

28 July 2015

Summary

No	Key Issues	Discussion points
1	Need for better coordination and facilitation of STEM programs	<ul style="list-style-type: none"> ○ Increased coordination and facilitation could make STEM programs more accessible for teachers. ○ ATSE could combine with RSQ to review the programs identified in the OQCS STEM outreach map – capacity, target, what have they done so far to get where they want to be? ○ Investigate further development of STEM education/outreach mapping as a tool to facilitate coordination of activities (single point of reference). Investigate further development of a STEM web portal for teachers to search and update, administered through OQCS. ○ Potentially develop a searchable web portal. In doing so, first identify what ‘search tags’ are important to teachers/parents/community. ○ Present as a supportive intent to the activities of the Govt. DET is not running programs/PD but pointing people towards them.
2	Facilitate student engagement	<ul style="list-style-type: none"> ○ ‘Hands on’ experiences are important for engaging students. ○ Ensure programs run by competent STEM people: internal and external to educational setting. ○ Getting students out and about on the ground and experiencing science is important. ○ Challenges to excursions: Costs; Releasing teachers; Naplan; Risk Architecture; Not part of the assessment; Time. ○ ‘In school’ programs can help address these challenges.
3	Rebuild the wonder of science	<ul style="list-style-type: none"> ○ Priority of STEM education should be raising scientific literacy. ○ There is a need to reinstate a sense of wonder in families and society- what experiences are parents/carers providing? ○ What experiences are available? ○ What are families doing together? ○ What language and mind sets are parents/ carers using, as they are engaging with children.
4	Foster equality in STEM education	<ul style="list-style-type: none"> ○ We need to ensure low SES communities are adequately supported by STEM outreach/engagement initiatives. ○ One vision is to remove the gap between the high and low SES ends in science competency. In Scandinavia, the competency level between high and low SES schools is not that different. ○ In low SES schools, cost of excursions for children may be a barrier. Disparity in opportunity – we’re not always fully aware of this. In those cases, programs run in schools can be very valuable.
5	Lift the profile of STEM in the curriculum	<ul style="list-style-type: none"> ○ Collaborative empowerment model – getting Principals to be advocates for STEM. ○ Influencing curriculum priorities at political level - local level engagement with politicians? ○ Removing distractors in curriculum- external testing, risk assessment, time demands in curriculum. ○ Schools are obsessed with NAPLAN and therefore, excursions and

		<p>science activities in general are suffering. NAPLAN is driving the agenda.</p> <ul style="list-style-type: none"> ○ Motivated kids will always find their pathway through science education – but those general interest students/community are a challenge. Keeping them engaged long enough to raise general science awareness and appreciation. ○ In high schools – compartmentalisation of subjects can be a challenge to complex problem solving and developing the skills needed for problem solving. ○ DET response - disciplinary basis to interdisciplinary learning.
6	Help build teacher capacity	<ul style="list-style-type: none"> ○ There is a wider need to value teachers more – this would require a societal shift. ○ Need to build teacher capacity for teachers who are not STEM proficient. ○ Idea of changing the standard of enrolment for teaching qualifications to create STEM teachers of quality, then you may need to pay more.
7	Note challenges in the job market for certain STEM professions	<ul style="list-style-type: none"> ○ Where are the jobs of the future that everyone is talking about? ○ We don't know what the jobs of the future will look like ○ The generic statement that STEM is in high demand can be misleading. ○ Engineering graduates are now experiencing difficulty in finding work. ○ There is also a need to educate other sectors, eg. business sector, about the valuable and transferrable skills of STEM ○ Potential to develop partnerships with industry to better match education with future jobs – eg. MOU with Washington State had huge educational outcomes: LEAP. Educators targeted the jobs of the immediate future.

Actions

No	Action	Responsibility	Timeframe
1	Develop summary of workshop and circulate	Office of the Queensland Chief Scientist/Royal Society of Queensland	14 August
2	Update Workshop Summary document and publish on website. Send any desired changes to Royal Society of Queensland.	Royal Society of Queensland	31 July
3	Maintain an email group – opt out if you would prefer not to participate	Royal Society of Queensland	Ongoing
4	Explore the development of a dedicated web portal	Office of the Queensland Chief Scientist/Royal Society of Queensland – Michael, Dimitri, Kay	Update progress in September
5	Potentially hold another meeting	Royal Society of Queensland	Assess in September