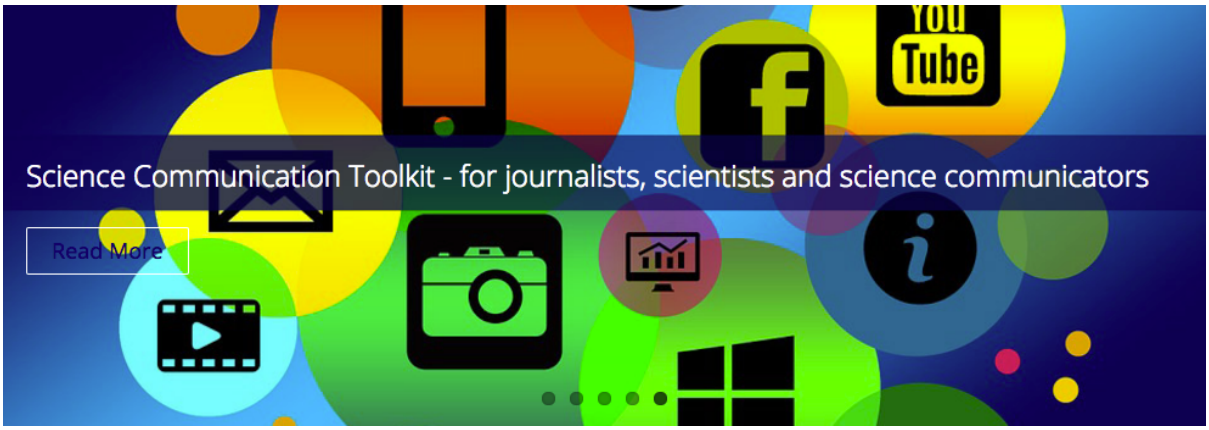
http://inspiringaustralia.net.au/



Get out of your STEM bubble

In a new report *The Future of Jobs and Skills*, the World Economic Forum states that 65% of children entering primary school today will ultimately end up working in completely new job types that don't yet exist. So it's no surprise that the future careers of STEM graduates will in no way resemble those of their teachers. Students and graduates across all disciplines can broaden their areas of interest and expertise by getting out of their peer networks and developing their communication and networking skills.

By 2020, more than a third of the desired core skill sets of most occupations will be comprised of skills that are not yet considered crucial to the job today. STEM skills have been identified as crucial, with PWC warning that 44% of today's jobs are at risk of digital disruption and 75% of Australia's future jobs requiring them. However, dissenting voices are already questioning the national push for more STEM graduates.

A recent Grattan Institute report entitled Mapping Australian Higher Education 2016 questions the merit of producing increased numbers of STEM graduates on the grounds of their very low graduate employment rates. For example, in 2015, 51% of science graduates seeking full-time employment did not find work four months after graduating. This is 17 percentage points below the average for all respondents to the survey. In the same year, the highest number of students were enrolled in science degrees (112,500) – and more graduated than ever before (15,600 domestic graduates).

It is a fact that there will not be jobs in scientific research for everyone who might want one.

Universities are still pondering what to do about poor employment outcomes. And recently the Education Minister warned universities against enrolling students into courses of study for which there are not strong employment prospects for graduates. So what is the value of being able to think like a scientist, even if you don't end up working as one?

In defending the value of STEM PhDs, Australia's Chief Scientist Dr Alan Finkel has drawn attention to the oversupply of graduates across the board including in Law and Medicine. He argues that the career options for today's science students will not be limited to the disciplines they study. While students' critical thinking skills are transferable, Professor Finkel says that this aspect of learning is rarely discussed at university.

Commenting in the Australian Science Communicators' Facebook group, medical microbiology and immunology graduate Eleni Thanos is a case in point. She writes:

"For me the big picture was to work in a lab either for research or for a pathology lab. The career was set in stone and I had academic and career advisors tell me so every step of my academic journey. Fast forward to now, where I am a year out of uni and have already 'crunched the numbers' and figured out that this path I'm on isn't working out for various reasons: not enough jobs in this field, the jobs that are available are incredibly competitive and I lack the work experience, among other reasons…"

Eleni came to a point where she says she felt broken and useless.

"I thought I had just spent a good part of 10 years of my life studying towards an unattainable goal … Nobody at all across ten years of education through TAFE and various ever told me that my scientific skills were transferable."

Eleni questions the authenticity and trustworthiness of university success stories that are used as marketing tools. Instead, she would like to see more alumni invited to share information about what they have learned when trying to get a job and the flexibility they've needed to develop in regard to their career aspirations.

There are all kinds of non-science skills that can help graduates enter the workforce, including communication, administration and networking skills. Deloitte Access Economics has found that employers currently experience difficulty filling STEM roles. Among shortfalls reported to the former Chief Scientist of Australia last year were that that candidates have

- unsatisfactory skills including a lack of business understanding (101 of 280)
- a lack of practical experience and lab skills (92 of 280)
- a lack of general workplace experience (98 of 280);
- qualifications inappropriate for business needs (72 of 280).[1]

Today's students need to be encouraged to venture beyond their disciplines. There are lots of fabulous programs, talks and networking events out there that they can get involved with to develop skills in communication, stakeholder engagement and collaboration. In particular, there are accelerator programs run at many universities and innovation programs developed by CSIRO including ON and Ribit. Inspiring Australia also creates all kinds of opportunities for students and graduates to network across disciplines and develop skills in public presentation and communication, in particular for campaigns like National Science Week.

By attending some of the events designed to engage researchers in emerging collaborations, students and recent graduates will see what is out there, meet interesting people and begin to develop a broader appreciation of where their knowledge and skills might take them.

Jackie Randles is the Manager Inspiring Australia (NSW). This is an extract from a keynote presentation delivered to the 2016 Australian Conference on Science and Mathematics Education on the theme: *The 21st Century Science and Maths Graduate*. The Conference was held on 28-29 September 2016 in Brisbane at the University of Queensland.

[1] Source: Deloitte, *Australia's STEM Workforce: a survey of employees*, 2015 http://bit.ly/1PVihrb