

**WESTERN SYDNEY**  
UNIVERSITY



**NSW COUNCIL OF EDUCATION DEANS CONFERENCE**

**WELCOMING ADDRESS**

**18 AUGUST 2017**

**VC'S SPEAKING NOTES**

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Thank you, Michele.

May I begin by acknowledging the traditional owners of this land and elders past and present.

Welcome to day two of a conference that is engaging a critical question for the higher education sector and society more broadly; specifically: 'What's next for education?'

It is fitting that we are able to host this event in a building that in many respects is an attempt to answer that very question.

At its simplest, this campus and its futuristic attributes are defined by what is missing.

There are, for example, no lecture theatres in this building. Instead we teach students in a 'flipped' classroom setting; a learning studio where they collaborate in small teams and engage with the lecturer in a partnered, rather than directed way.

Technology in this building is not confined to 'computer labs' or designated IT spaces. Instead it is infused throughout the entire campus, from the IoT systems that provide live transport updates through to video supported teaching, conferencing and collaboration.

Devices aren't switched off as you enter the learning environment. Rather, they become an interactive part of the experience, enabling information to be shared, critiqued and constructively engaged by colleagues before, during and after teaching sessions.

Lastly, this campus has diffused the borders between industry, government, the community and the university. We share the building with tenants from PwC and

Water NSW. They use our conference spaces, our meeting rooms and studios alongside students and staff.

Equally, external partners like the National Australia Bank, the Greater Sydney Commission, Western Sydney Youth Action, and NSW Health conduct economic forums, policy reviews, planning sessions and 'hacks' in the campus.

In this setting, students are exposed to, and actively participate in concepts they would otherwise engage only on a theoretical level. Equally, they are building networks with external entities that are embedded locally but have, in most cases, global reach.

This conference is an example of that.

The steps we're taking here at Parramatta Square are deliberate. And, they are just a few examples of what is possible with the campus as a built-form.

Of course, the innovations associated with future-casting education extend well beyond what is achievable through site activation.

In reflecting on the many challenges we face in education over coming decades – particularly in a socioeconomically diverse region like Western Sydney – I would argue the teaching of science, technology, engineering and mathematics (at all levels) rates as our highest priority.

That view is perhaps no surprise to those of you whom may be aware of my background in maths education, and indeed, my current role as the President of the Board of Trustees of the Museum of Applied Arts and Sciences.

But these are not just my obsessions. It is a matter of national importance.

To remain competitive and prosperous, Australia must transition away from outmoded industries, and – as both the government and opposition urge – move towards becoming a 'knowledge-based' economy.

That shift cannot occur without a generational uplift in STEM literacy.

Given the scale of the challenge we confront, and the focus of this conference, what should we as educators be doing?

In Australia, the STEM Education agenda was kick-started in 2013 by a series of reports from the Office of the Chief Scientist, outlining how important STEM is for nation's future.

In 2015 all Australian educational jurisdictions endorsed the *National Schools STEM Education Strategy* which highlighted the lack of student interest in senior science and advanced mathematics.

The strategy outlined five areas for action, focussing on:

- students
- teachers
- school systems
- industry-tertiary institution partnerships, and
- building a sound evidence base.

Teacher education is a central concern across all of these areas. With the right settings and support, it can become one of the most effective drivers of STEM education reform.

Traditionally STEM subjects have been taught in isolation in schools. Mathematics is taught by mathematics teachers, science by science teachers and so on.

The STEM agenda disrupts such structurally conventional approaches to education by challenging educators to teach STEM content within integrated curricula.

In line with the (2008), *Melbourne Declaration on Educational Goals for Young Australians*, STEM education has the potential to support the development of skills in cross-disciplinarity, critical and creative thinking, problem solving and digital technologies.

This multi-lens approach is at the core of all 21st century occupations. It is a constant in an otherwise disrupted work trajectory.

If successfully applied in education, this approach – by virtue of its real-world relevance – has the potential to engage young people in STEM concepts and subjects in far greater numbers than is currently the case.

Preparing teachers with these attributes requires we establish *pre-service* and *in-service* teacher education programs which place inquiry-based-learning and integrated curriculum as central foundations for teacher training.

But devising integrated curricula which also promotes the development of rigorous discipline-knowledge isn't an easy proposition.

This is particularly so if teachers are also expected to situate student learning in contemporary 'real-world' contexts.

While some teachers embrace the flexibility they are afforded by integrative approaches, others interpret this flexibility as ambiguity.

Facilitating messy, problem based approaches to learning requires a higher level of teacher confidence. It demands a greater pedagogical repertoire, and a willingness to relinquish some control over the classroom setting.

So, in service of the STEM agenda, teacher educators will need to devise ways to prepare resilient teachers who embrace uncertainty in the classroom.

At Western Sydney University we are meeting this challenge with two new teacher education degrees:

- the Master of Education (STEM) for *in-service* teachers, and
- the Master of Teaching (STEM) for *pre-service* teachers.

Students undertaking these programs will be exposed to the latest developments in STEM curriculum integration. This includes frameworks for incorporating computational thinking as a core component of contemporary STEM practices.

Importantly, the STEM programs we are introducing complement, not replace the advancement of specialist discipline knowledge in science, mathematics and technology. It's not a case of 'either or'... it's 'both'.

*Pre-service* teachers in our programs will engage in extended professional learning placements in carefully chosen schools with a STEM – problem-based learning ethos.

At the 'in-service' stage, teachers will conduct action research into STEM practices in their schools, enabling them to build their research skills so that evidence-based practice becomes the norm.

These practical, contextualised learning experiences are designed to support the development of teacher resilience and adaptability, within and beyond the classroom.

I've already hinted at some of the innovations embodied in the changing architecture of learning spaces; changes reflected in this building.

Interactive technology platforms are replacing whiteboards.

Moving walls are making spaces more adaptable.

And students are being afforded greater autonomy about how, when and where they engage with learning programs.

What does all of this mean for university Education faculties and schools?

There will always be students whose goals and educational needs are best met through a more traditional educational model. Just as there will always be certain professions for which a more regulated and verifiable educational process is necessary; for example, medicine and law.

But the scale of change overall means that schools will have to become far more flexible, agile and adaptive learning spaces.

And the preparation and ongoing development of teachers will need to mirror these shifts.

Augmented reality and other technology will be integral to these processes.

Meeting challenges of the nature will require greater collaboration across institutions.

Collaboration must also include technology partners and create opportunities for co-creation and co-design on the part of students.

The content of teacher learning will broaden to include a much greater focus on learning-sciences and learning-design.

There is a huge research agenda to be worked through.

Understanding what works for whom and under what conditions, will become an increasingly vital exercise.

Developing a research agenda that can keep pace with these advances will need careful thought and sustained effort.

Schools and faculties of Education will be both the *objects* and *drivers* of change. That's not an unusual proposition for universities but the scale of the challenge will require leadership that is visionary.

It will require leaders prepared to discard old ways of thinking when needed; but strong enough to stay the course when the way ahead is challenging but grounded in evidence.

These are principles the next speaker relentlessly champions at the leadership, structural and grassroots levels.

He has brought a level of acumen, rigour and innovation to the portfolio that wholeheartedly embraces the challenges ahead and unambiguously engages the question of, 'What's next for education?'

Ladies and gentlemen, please join me in welcoming the NSW Minister for Education, the Hon Dr Rob Stokes MP.