

DESIGN IS LIFE!
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www.i-edu.com.au

AN INSPIRED INSIGHT INTO AUSTRALIAN EDUCATION

TEACH BY DESIGN[®]

A report about the no. 1 most integrated subject matter within Australian education: **Design & Technologies.**

INSPIRED
EDUCATION

A critical moment in education, for the future of Australia.

Our team has been actively working with Australian teachers and schools to get the latest industry-aligned skill sets embedded into the classroom by empowering, inspiring and upskilling our society's most undervalued asset: the (inspired) teacher.

As a nation, we are on the brink of a critical moment. Teacher numbers are at an all-time low, with frightening shortages and unparalleled stresses causing burnout in our valued educators. As a result, teachers that have the right skills for their subject, combined with an ability to teach with empathy, are becoming even rarer, with many choosing to leave the education sector altogether.

At the recent DATTA Conference 2022, our team set out to dig deeper and understand this critical moment in more detail. We set out to provide a platform for teachers to voice their thoughts and have a say — a chance to share their insights alongside the stakeholders of Australian education.

This **interactive PDF report** details the various findings and crucial insights to the most integrated subject matter in Australian Schools, Design & Technologies, needed for Australia's competitive future. You will find useful links, videos, interviews, and other relevant resources — so, watch out for the clickable buttons!

Finally, when it's time to take action, click the button below and let's get inspired.

Convention Centre



INSPIRED
EDUCATION

Registration

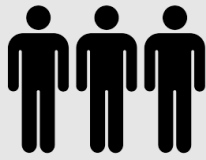
Q-Z

THE CONFERENCE #DATTAQLD2022

Design and Technology Teachers Association (DATTA) QLD 2022

16 / 17 June 2022

Brisbane Convention & Exhibition Center + Online **LIVE**



225

TEACHERS & SCHOOL STAFF



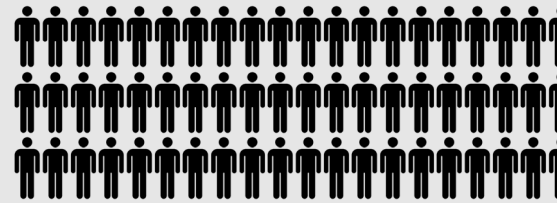
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INDUSTRY
PROFESSIONALS



30+

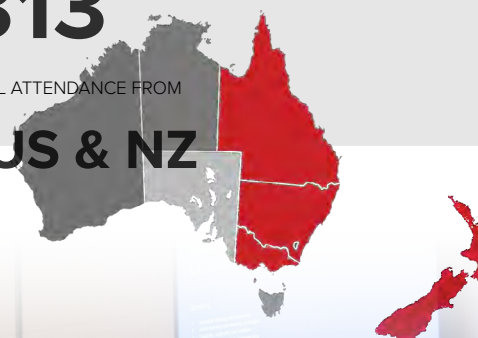
BRANDS



313

TOTAL ATTENDANCE FROM

AUS & NZ



Source: Data provided by Expert Events and DATTA QLD



Photograph of the DATTA 2022. Credit: Mr Roshan Senanayake



WHY THIS IS CRUCIAL?

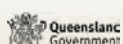


85% of Jobs in 2030 Have Not Been Invented Yet.

The [▶ DATTA keynote speech](#) was delivered by our founder [Rashan Senanayake](#), and QLD’s Assistant Education Minister [Brittany Lauga](#), offering a much-needed inspirational and informative moment to our valued teachers. The keynote showcased the leading technologies used in industries on a global scale, compared alongside the various career pathways, skills and opportunities that lay ahead for students studying STEM and design & technologies, as well as the various government support programs available for teachers. This was followed by a stellar guest panel, featuring Rashan and Brittany alongside **Prof. Lisa Scharoun** (Head of School of Design at QUT), **Mark McMullin** (DATTA QLD President) and **Jody McCaully** (Skills & Training - Department of Regional Development, Manufacturing and Water).

KEY TAKEAWAYS

- Most future careers have not been invented yet. As detailed in a World Economic Forum report ([Future of Jobs 2018](#)), 85% of the jobs we’ll see in 2030 have not been invented yet. But the common growing skills across those jobs are the core skills of design & technologies: creativity, critical thinking, creative problem solving, technology literacy, and empathy.
- As per the [Australian Government’s Digital Economy Strategy 2030](#), human-centred design or “Design Thinking & Innovation” needs to be a key skill of the classroom and within the Australian Curriculum.
- Career opportunities and market sectors are rapidly growing with these skills in high demand, creating many opportunities for design & technology students.



“
For Australia to be a competitive country
on the global stage...
DESIGN & TECHNOLOGIES needs to be
the most **INTEGRATED** subject matter
within Australian education.
”

Rashan Senanayake, 2022



Rashan Senanayake
Founder
Inspired Education Australia

Brittany Lauga MP
Assistant Education Minister
Department of Education

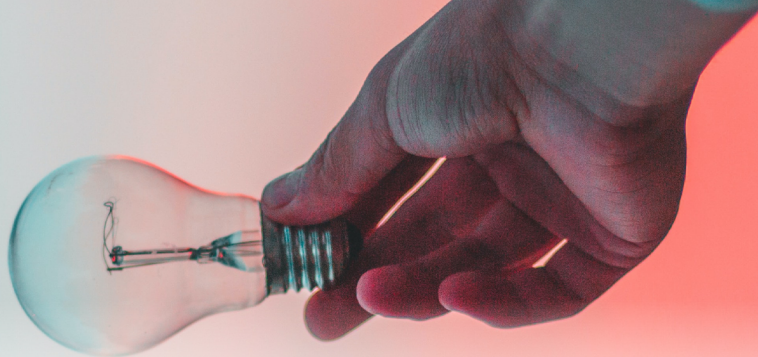
#DATTAQLD2022

DATTA
Queensland
Design And Technology Teachers'
Association of Queensland Inc.

DATTA 2022: Key note address by Brittany Lauga MP outlining various government support

“ITD really is such an important subject area in our schools and these teachers are teaching cutting edge technologies and skills that our industry in Queensland and right across the world need for the future”

Brittany Lauga MP, 2022



THE KEY TO AUSTRALIA'S FUTURE COMPETITIVE EDGE

Design Thinking for Our Future



Written by **Dr David Turner** (Director of Professional Learning)
[Queensland Association of State School Principals](#)



The competitive advantage in today's world is no longer what you know, but rather how fast you can learn. The complexity of the times in which we live brought about by such things as technological innovation, climate change, displaced populations and conflict, mean that what might have worked in the past may not now, or indeed into the future.

What is emerging from the worldwide drive to improve school is the industrial age mindset of increasing the efficiency of the production line is no longer sufficient for us to create the type of world for humanity to thrive. It seems to me that many of the initiatives in schooling that are better preparing learners for our future are being driven by approaches the design world knows well. For example, being driven by a clear and compelling purpose, being primarily concerned with human outcomes, applying fast iterative learning cycles, and building high levels of psychological safety in teams and ecosystems. Learning needs to come alive.

The nature of the workforce is indeed changing and therefore preparing learners for the future must also change. This is not only necessary for the youth in our schools today, but for the survival and thriving of us all. Design Thinking and its application in schools is an integral part of making this possible.



A Critical Moment...

Design & Technologies subjects see third highest teacher shortages (2021)

The [Association of Heads of Independent Schools of Australia \(AHISA\) 2021 report on Staff Recruitment, Retention & Turnover](#) detailed the top five areas of teacher shortages or hard to fill positions in 2021. These were:

- Mathematics
- Physics
- **Design & Technology**
- Chemistry
- Languages other than English

Given the crucial nature of the transferrable skills embedded into design and technologies, this is an extremely concerning situation for Australia's competitive future.

The Sydney Morning Herald

4 Jul 2022 by Lucy Carroll

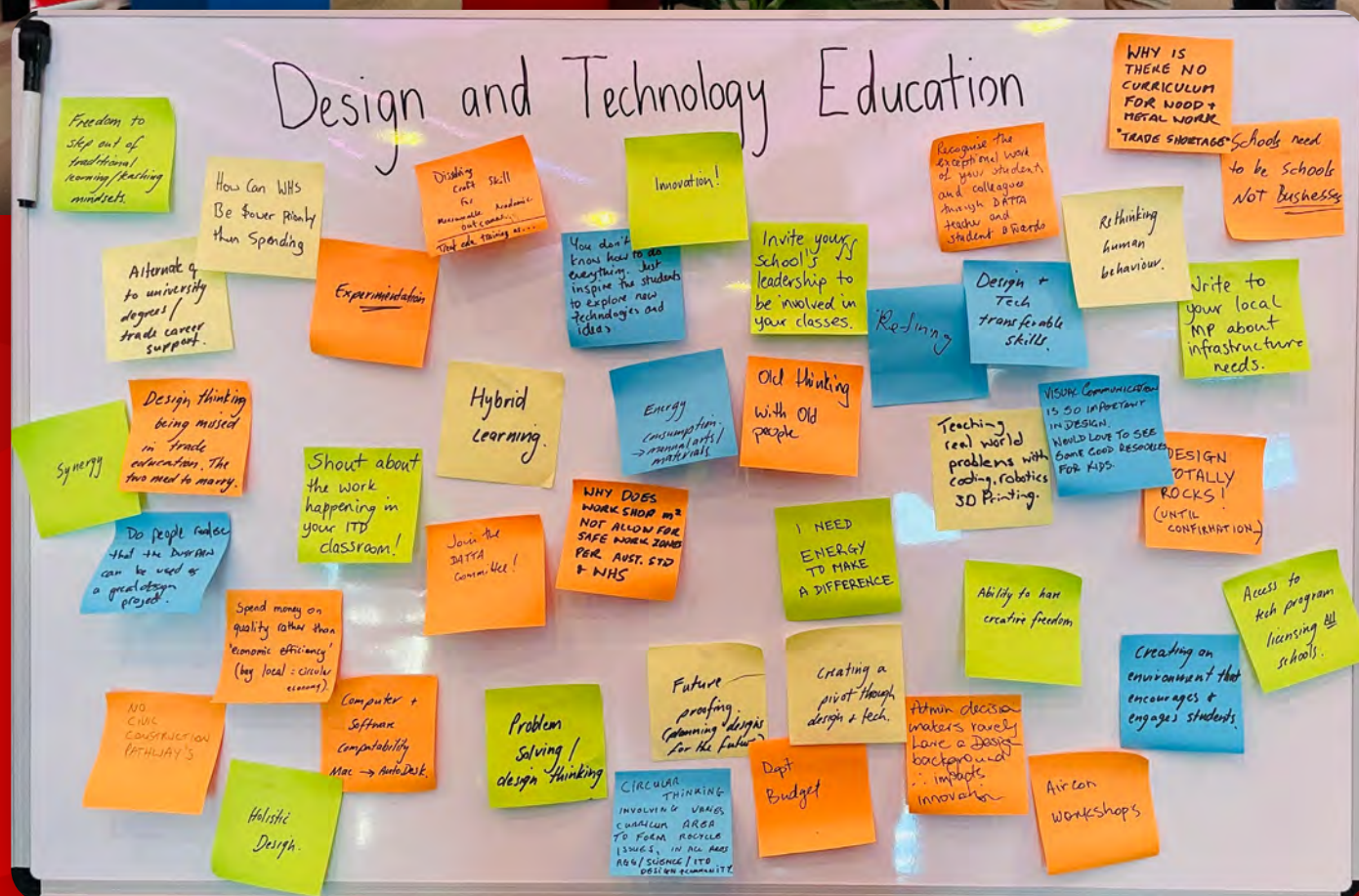
The Association of Heads of Independent Schools of Australia (AHISA) surveyed its 440 members – who oversee 443,000 students – on recruitment and retention of staff in schools across the country. Of the third that responded, 42 per cent reported design and technology teacher shortages, and about a third said finding teachers for chemistry and languages subjects was increasingly difficult.

The survey found high school teacher turnover rates jumped from about 5 per cent in 2019 to 11.5 per cent last year, with family relocation, retirement and teachers taking up positions at other schools the top three reasons for leaving.

But wait, there's more...



Inspired Education Australia - Exhibition Stall, turned into a live talkshow and teacher insights hub.



Messages straight from the teachers...

At the DATTA Conference 2022, our exhibition stall was transformed to give teachers opportunities to have a say, cry for help, share their thoughts, suggestions, comments, insights, whatever was on their mind. What you see above is a collection of valuable thoughts from a passionate group of teachers who currently act as the cornerstone of what gives Australia its globally competitive edge, while future-proofing our student's success.



THE POST-IT COLLECTION

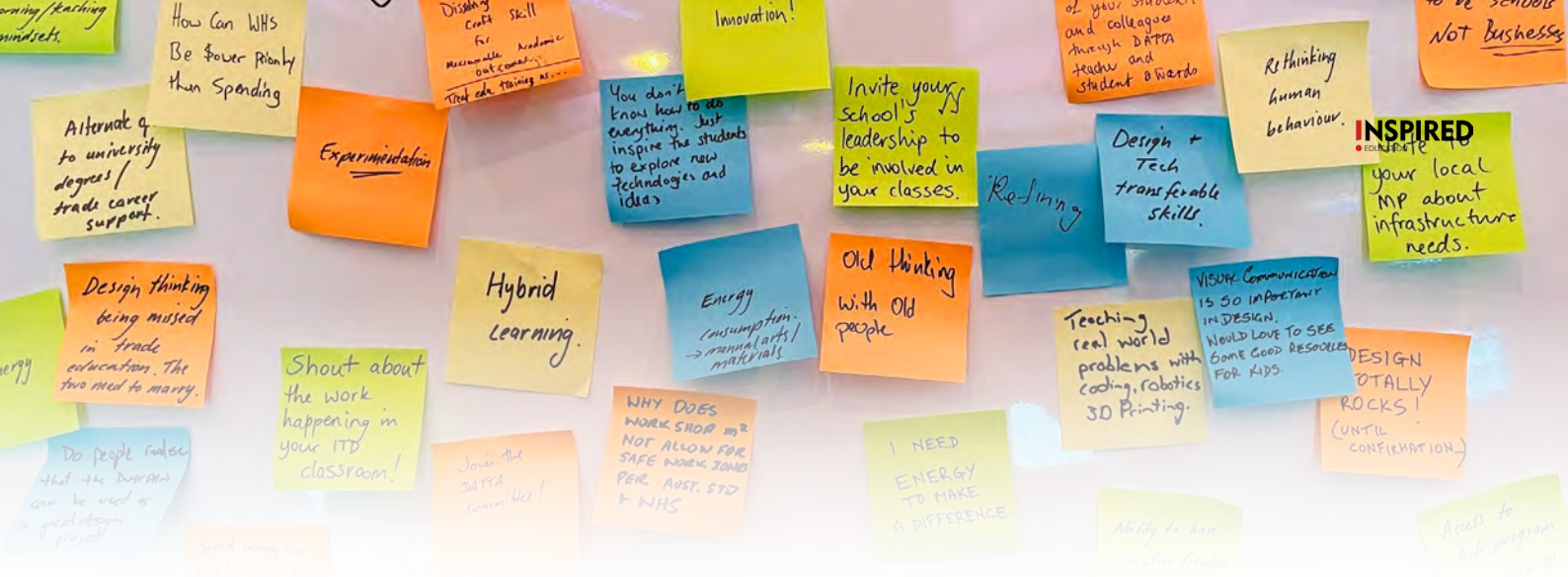
Teacher Insights

Over the two day conference we collected forty-four post-it notes (each of them detailed in the next page) from the conference delegates detailing some amazing insights. we found some common themes when analysing these comments and it is crucial we pay close attention to these insights:

THE KEY THEMES

- **A genuine excitement and appreciation for design & technologies education.** Many teachers described the passion and value they feel for D&T education.
- **Helpful suggestions.** Constructive notes that consisted of tips, tricks, and general ideas for other teachers, government, and educational stakeholders.
- **A cry for help...** (the longest list!). A mix of insightful feedback, issues, challenges, areas for improvement and simply requesting more support, appreciation and value.





THE POST-IT COLLECTION

Teacher Insights

D&T EDUCATION!

- Experimentation!
- Synergy
- Innovation!
- Re-thinking human behaviour
- Teaching real world problems with coding, robotics, 3D printing
- Ability to have creative freedom.
- It is freedom to step out of traditional learning / teaching mindsets.
- Problem solving / design thinking
- Refining
- Hybrid Learning
- Holistic design
- Design & tech are transferrable skills

SUGGESTIONS

- Write to your local MP about infrastructure needs
- Visual communication is so important in design. Would love to see some good resources for kids.
- Spend money on quality rather than 'Economic efficiency' (Buy local = circular economy)
- Join the DATTA Committee!
- Invite your school's leadership to be involved in your classroom
- Circular thinking – involving various curriculum area to form recycle issues in all areas (Agricultural, science, ITD, design community)
- Do people realise that a "dustpan" can be used as a great design project?
- Create an environment that encourages & engages students.

- You don't need to know how to do everything. Just inspire the students to explore new technologies and ideas.
- Recognise the exceptional work of your students and colleagues through DATTA teacher and student awards.
- Future Proofing (planning designs for the future)

CRY FOR HELP!

- Why does workshop m2 not allow for safe work zones per Australian Standard & Workplace Health & Safety regulations?
- Energy (consultation in D&T need to be considered!) – more tech means more energy!
- No civil construction pathways.
- Creating a pivot through design & tech is needed!
- Dissolving craft skills for measurable academic outcomes. Treat Edu training as apprentices.
- Design totally rocks! (Until confirmation...)
- Access to tech programs licensing ALL schools.
- Aircon workshops for students and equipment!
- Admin decision makers rarely are from a design background. This halts innovation!
- I need energy to make a difference!
- Schools need to be schools, not businesses!
- Why is there no curriculum for wood & metal work "trade shortage"
- Design thinking being missed in trade education. The two need to marry.
- Alternate options to university degrees / trade career support.
- Computer & software compatibility (i.e., MAC to Autodesk)
- Shout about the world happening in your ITD classroom!
- Department Budget is the focus
- Old thinking with old people



THE DISCUSSIONS

Time to Watch and Learn...

Inspired Education team members spent the conference speaking to teachers in order to understand and gather insights at multiple levels — including student needs, teaching and learning challenges, school level problems, as well as what changes teachers would like to see.

Each guest shared their insights, advice to parents, advice to school leadership as well as the various stakeholders who govern the education sector. The bravest of them came into our exhibition stall in the video talk show that you can watch below.

Listen to these teachers and their message - it's time to watch and learn.



PASSION LED US HERE



The Real Results!

WHAT IS IT ALL ABOUT?

Deep-Dive into Design & Tech.

Design & technologies naturally incorporates a wide array of transferrable skill sets. Due to this diversity, this highly integrated subject matter naturally creates many misconceptions and misunderstandings among students, parents, educators and even industry stakeholders. These common misconceptions should be addressed at the most foundational level. So let's begin:

Where is basic literacy and numeracy?

Standard literacy skills are built into design & technologies subjects. It even takes things a step further by incorporating visualisation, empathetic storytelling, leadership and communication skills across multiple mediums.

Basic literacy and numeracy will remain a foundation of all work, but the digitalised future of work will change the mix of other skills required. Complex cognitive skills such as programming and creative problem-solving will be in greater demand. 'Soft' social and intercultural skills, including collaboration, communication, consultation, and systemic and creative thinking, will also be increasingly vital, while basic physical, manual and cognitive skills are expected to decline.

Education will need to be tailored to support lifelong learning and vocational training, combining both solid technical skills and the soft skills of collaboration, creative thinking and communication. Design & Technologies is the centre!

Career options are limited!

Design has changed vastly, to the extent that it can now be integrated into almost any discipline. Designers and design thinking are now sought after in every industry - especially in business and new emerging Industry 4.0 and 5.0 sectors. See next page 16!

▶ [What is Industry 4.0?](#) ▶ [What is Industry 5.0?](#)

That it only involves trades.

Hand in hand with the above point, one cannot exist without the other. Trades alone cannot be sustained within industry 4.0 and 5.0 without the involvement of design, creative problem solving, and critical thinking.





The Real Results!

WHAT IS IT ALL ABOUT?

Deep-Dive into Design & Tech.

That it does not involve trades.

Design and trades share a close relationship and a crucial symbiosis that requires ideas to come to life. Without this relationship, design work cannot manifest itself into reality.

It is a life skill, not just an end product.

Design is applicable to every human. It is the process and approach of learning, thinking, problem solving, and innovation that is fundamental to their success.

Students do not like design & technologies.

Students innately love problem solving and creativity — younger students are naturally geared to do this better than we are — especially before the real world constraints are added on top! With the right guidance, which student doesn't want to bring their ideas to life while playing with cool tech?

Failure is not an option!

Failure is part of it! So is Empathy, Experimentation and Collaboration. These are the foundational values of design, design thinking, and technology education.

It should be "STEMD".

This is the number one constraint in Australian education. To move into the future we must "forget what we think we know" and open our minds to new possibilities. Design & technology is integrated across many subject areas and multiple faculties and should be the foundation in any school, especially if we want to better prepare our future professionals for a fast-paced, high-tech world. We all know "STEM" — instead think "**STEMD**": Science, Technologies, Engineering, Mathematics and Design.

Agile & Lean are different elements.

Design & technologies opens the door to a whole new world. When looking at the education sector, "Agile" and "Lean" practices can be closely followed for a more evolved school of design, as well as facilitate amazing learning experiences for students and (most importantly!) boosted skills for innovation that Australia desperately needs for its future globally competitive edge.

understand

eg. existing solar solutions for private houses are a good investment (1).

TOO MANY
POINTS FOR
COMPARISON
Hard to

TOO MANY
TABS

Too much
redundant
info on SL
cards

Why is Design so crucial for Australia's future competitive edge?

The opportunities, skills, and career paths stemming from

Design & Technologies

MANUFACTURING

TECHNOLOGY

TRADES

DESIGN

ENTREPRENEURSHIP

MANUFACTURING

- Aerospace & Defence
- Advanced Manufacturing
- Industry 4.0 Technologies
- Construction Manufacturing
- Textile and Clothing
- METS / Mining
- Automotive and Vehicles
- Marine
- Rail
- Renewable Energies
- Biomedical & Technologies
- Life Science
- Precision Agriculture
- Food Manufacturing
- Furnishing
- Engineering
- ...

DESIGN

- Architecture
- Industrial Design
- Landscape Architecture
- Interior Design
- Graphics Design
- Fashion Design
- UX/UI Design
- IVD Design
- Business Design
- Behavioural Design
- Creator's Economy Design
- Experience Design
- Strategic Design
- Instructional Design
- Services / Process Design
- Security Design
- RPA Design
- Cloud Design / Architect
- Quantum Design
- Mixed Reality Design
- Tech Architecture
- ...

TRADES

- Carpenter
- Steel Trades
- Electrician
- Heavy equipment operator
- Specialised product Installers
- Landscaper
- Applicators
- Plumber
- ...

TECHNOLOGY

Endless career paths...

RELATED & SUPPORTING CAREERS

- Business Manager
- Financial Manager
- Business Development
- Project Manager
- Consulting
- ...

OTHER

- Business careers
- Law
- Science careers
- Health & medicine
- ...

ENTREPRENEURSHIP

Endless career paths...



To Learn More



This diagram is designed to showcase the key skills involved in Design & Technologies which branch off to many career paths for Australian students. This is not an exhaustive list.

Global goals aligned with the SDGs of the United Nations



Design Thinking approach can vary and be visually represented in other methods.



de·sign
/dəˈzīn/
noun
1. a plan or drawing produced and function or working of or other object before it has just unveiled

THE KEY TO AUSTRALIA'S FUTURE COMPETITIVE EDGE

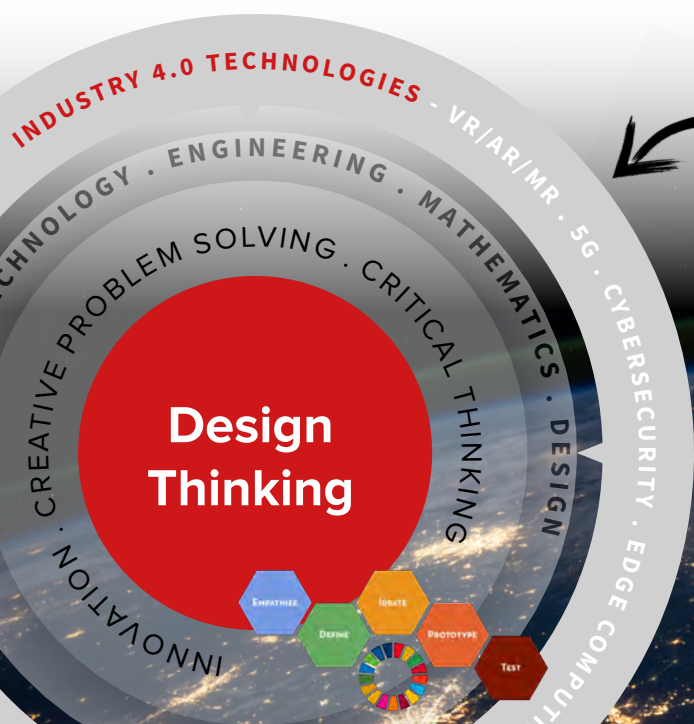
Design & Technologies Pathways, Opportunities and Trends.

Design & Technologies integrates some of the most vital transferrable skills, unlike most other stand-alone learning areas in Australian education. This subject area can be integrated as individual skill sets, richer learning experiences, and deeper exploration in cross-curricula collaborative experiences (i.e. STEM, ICT, business or entrepreneurial experiences) for students.

The knowledge, skills, attitude, mindset, and workflow that builds from learning design & technologies allows our students to establish a strong foundation of transferrable skills that branch out across a large array of highly lucrative career opportunities.

The happy result is that this builds Australia towards naturally becoming a more innovative country — both now and in the future with a strong, capable and creatively empowered human capital.

So, what are these growing trends & technologies? Read on...



This is the value of D&T Teachers.

FORECAST AT 2022

Top 8 Industry Technologies & Careers



MARKET SIZE (2022): \$2.32B → \$30.85B (2030)

ROBOTIC PROCESS AUTOMATION (RPA)

Exciting Careers:

- RPA Designer
- RPA Developer
- RPA Analyst
- RPA Architect
- ...

MARKET SIZE (2022): \$2.9T → \$4.42T (2030)

IoT

Exciting Careers:

- Industrial Designer
- AI Specialist
- Software Dev / Designer
- Data Analytics
- ...



MARKET SIZE (2022): \$40.5B → \$116.50B (2030)

EDGE COMPUTING

Exciting Careers:

- Cloud Reliability Engineer
- Cloud Infrastructure Engineer
- Cloud Architect and Security Architect
- DevOps Cloud Engineer
- ...

MARKET SIZE (2022): \$240.27B → \$797.8B (2030)

5G & CYBERSECURITY

Exciting Careers:

- Ethical Hacker
- Malware Analyst
- Security Designer
- Security Engineer
- ...



To Learn More

[CLICK HERE](#)



FORECAST AT 2022

Top 8 Industry Technologies & Careers (Cont.)



MARKET SIZE (2022): \$9.88B → \$15.7T (2030)

AI & MACHINE LEARNING

Exciting Careers:

- AI Research Scientist
- AI Engineer
- Machine Learning Engineer
- AI Architect
- ...



MARKET SIZE (2022): \$10.02B → \$3.1T (2030)

BLOCKCHAIN

Exciting Careers:

- Risk Analyst
- Tech Architect
- Crypto Community Manager
- Front End Engineer
- ...



MARKET SIZE (2022): \$393.3M → \$181.6B (2030)

QUANTAM COMPUTING

Exciting Careers:

- Quantam Mechanics Engineer
- Design Thinker
- Machine Learning Specialist
- ...



MARKET SIZE (2022): \$23.40B → \$454.7B (2030)

VR & AR

Exciting Careers:

- UI/UX Designer
- Industrial Designer
- Unity / Blender / Unreal Developer
- IV Designer
- ...

WHAT'S NEXT?

To Learn More

[CLICK HERE](#)



It's time to take action...

Australian educators currently have an incredible opportunity to position ourselves, equip our future generations with the right skills and make sure we become an innovative country within industry 4.0 and beyond. It starts with taking action right now.

SPREAD THE WORD.

Share this document with your teachers, school leadership and even parents. Post it on social media, send it to your state's education legislators, anything you can do to spread the word is appreciated.



ARRANGE A FREE CONSULTATION.

Our team is on standby and ready to help! We are offering any Australian school the chance to engage us through a free, no obligations consultation with your school's teachers and leadership. Available Term IV, 2022 & Term I, 2023 only.

In this consultation we will outline, guide and share insights into:

- Global trends, career paths, and skills required for student success.
- Understand what Education 4.0 & 5.0 is within your school and how your school can align with Industry 4.0 and 5.0.
- How to design & align your school pedagogy with Industry 4.0 and 5.0.
- How to upskill, empower and inspire your teachers.
- Leading technologies and solutions to integrate safely and effectively.
- How to create a unique competitive edge for your school.

[CLICK HERE](#)

Limited Bookings available.

EDUCATE THE PARENTS.

Lastly, arrange an event to speak to your parents and students on future trends. We are taking limited bookings, so express your interest asap!





1750+
Teachers Trained

750+
Schools in Australia



52,500+
Students Inspired



INSPIRED
● EDUCATION

Helping Teachers, Teach by Design[®].



Services &
Expertise



Inspired
Teachers



Design an education system that facilitates the development of our teachers and harnesses their potential to inspire, innovate and mould our future leaders.

At Inspired Education Australia (IEA), we have one simple goal – to guide and enable the learning and development of current and future educators of Australia. Helping Teachers of Australia TEACH BY DESIGN[®].

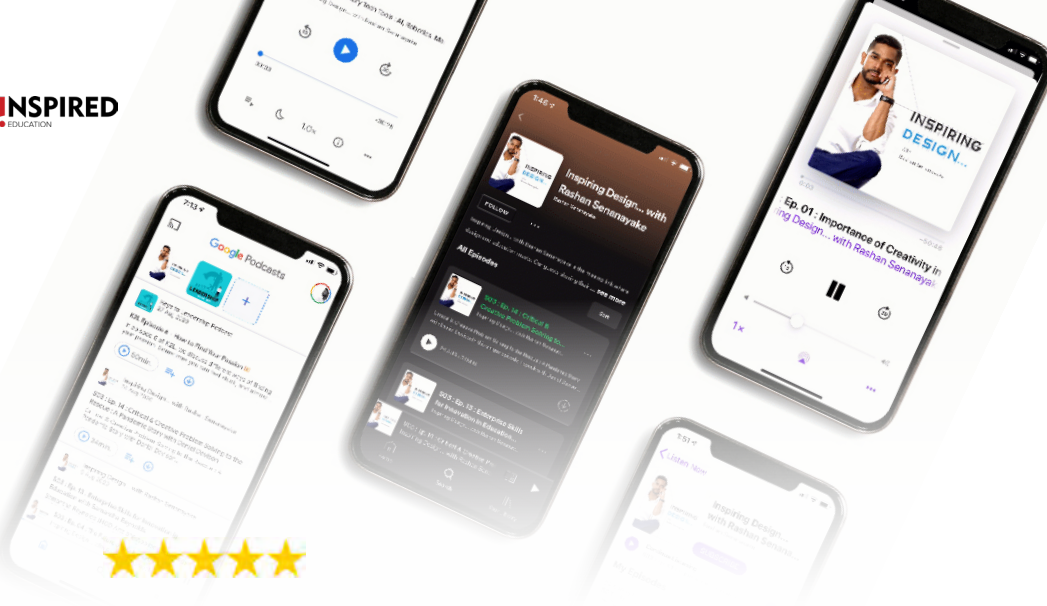
To help teachers deliver high quality teaching with the latest skills, knowledge, technologies and techniques of industry 4.0 & 5.0.

Our skilled trainers are leading creative thinkers and experts in not only their respective training topics, but also the education sector in the primary,

secondary, and tertiary levels. Through an established practice of design thinking, we have been able to make a significant impact in schools and universities at an educator and student level through multiple delivery methods.

We constantly listen to our teachers and students and dedicate ourselves to their vision, passion, pedagogy and leadership.

It's our duty today to pave the pathway to a **better tomorrow.**



Unmistakably Design & Technology Education.

INSPIRING DESIGN WITH RASHAN SENANAYAKE

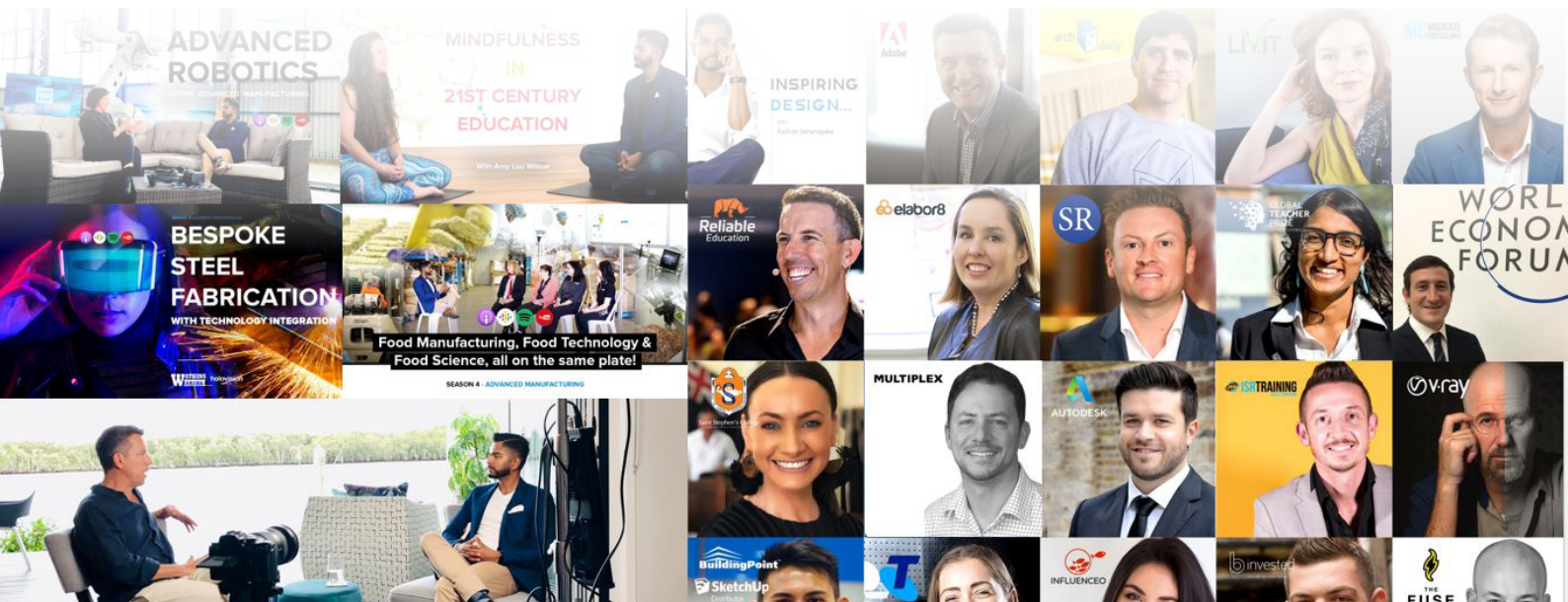
Inspiring Design... with Rashan Senanayake is the missing link where design and education meet. Our guest speakers share their knowledge in design, education, industry standards, and more in order to connect knowledge gaps in the design industry from an education stand point.

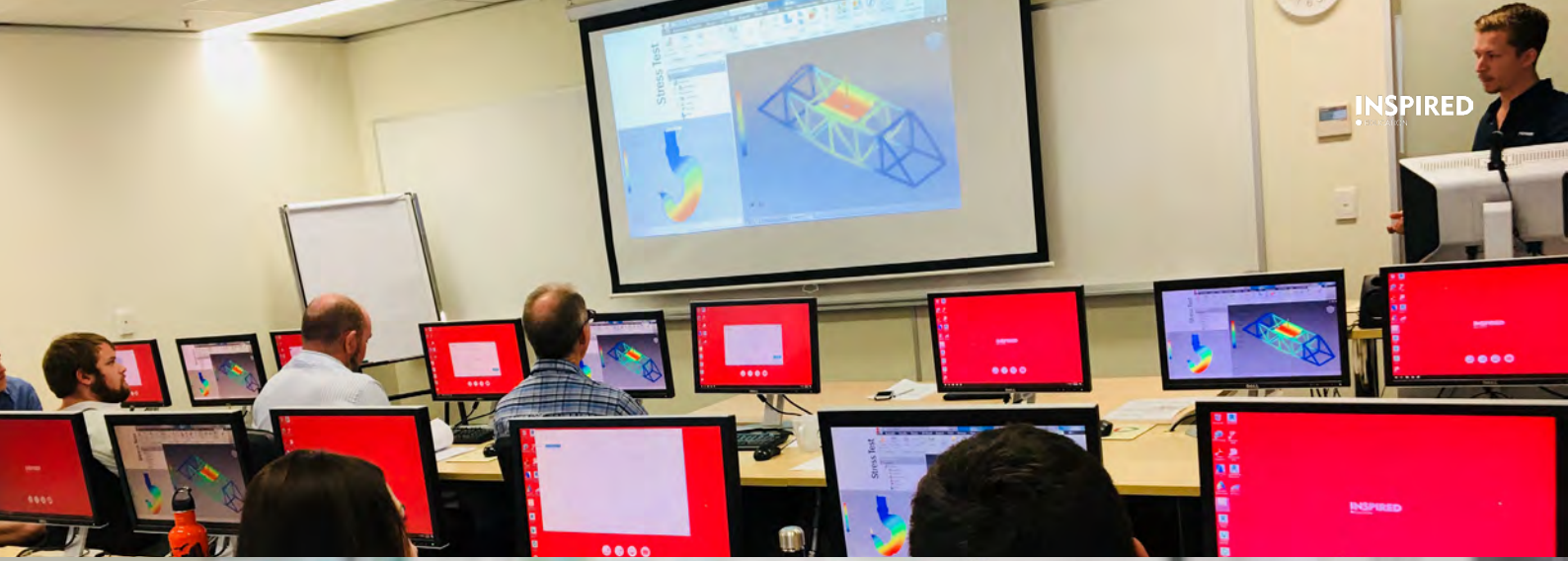
It's how we transform new realities and enable new futures.



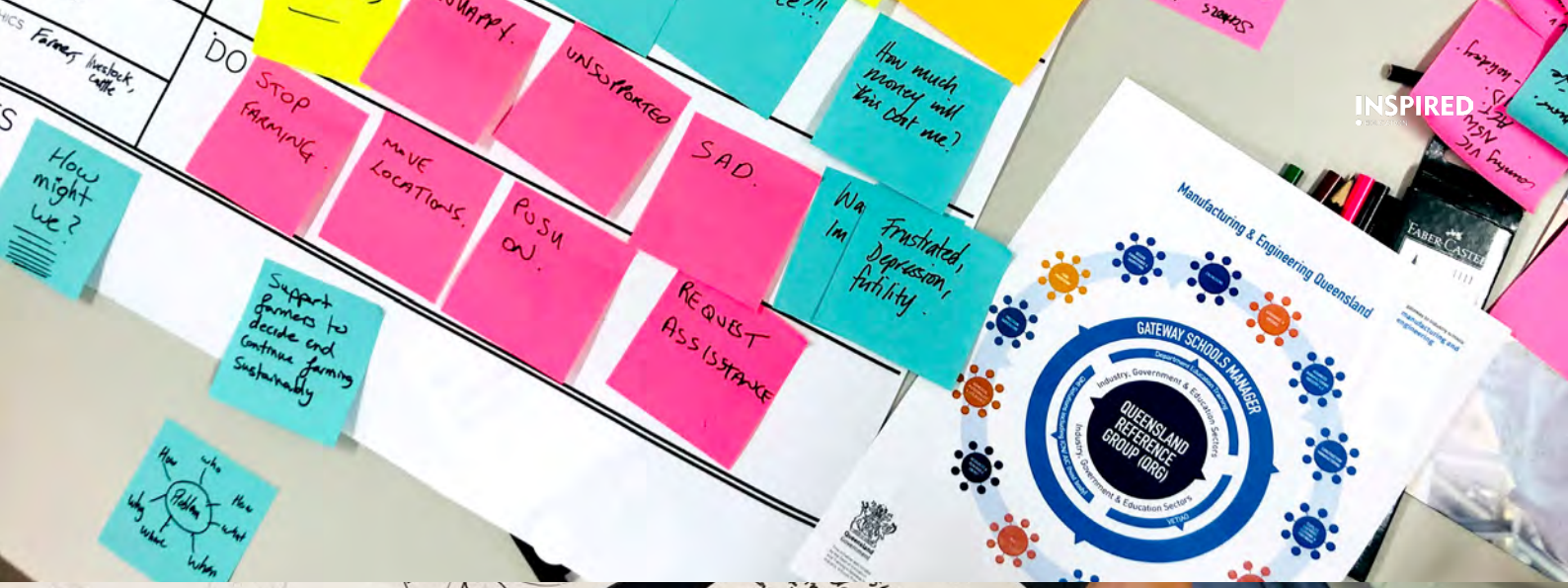
[CLICK HERE](#)

TO ACCESS ALL EPISODES





A collection of images from Inspired Education-Australia's teacher professional development.



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Sincere thanks to every team member, stakeholder, writer, speaker, teacher and partner that have contributed to the development of this report.



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