

Keynote Presentations

Technology and the Beta Mindset (Sev Lee)

Have you ever wondered how grassroots tech has evolved so rapidly whilst teaching is measly stepping back from black board to interactive white board? Do you ever wonder why we use monolithic enterprise solutions such as Blackboard Moodle and others so dependent on politics protocols and bureaucracy whilst holding back innovation in teaching? Are we all waiting for a change in the classroom coming from the top down? Is our feeling of entitlement for professional development hindering our curiosity and inner teaching innovation and leadership? How about teaching of the beaten path. Taking the road less travelled to teaching and learning and adopting a mindset allowing for trials and errors, for wider feedback and input as opposed to waiting for organisations wide adoption when the most innovative minds are already onto the next best thing. Let's explore the notion of the Beta mindset and how it can serve teaching and learning

Tech-fueled Innovation in Teaching and Learning (Stephen Dornan & Macie Rudoff)

This presentation will share an overarching view of why learning technologies are essential in the transition to learner-centered education. We will consider the ways in which technology allows educators to enhance and even redefine their teaching and learning practices. We will discuss the inherent power in effective technology use that permits teachers to better differentiate, personalise, diversify and provide meaningful and timely feedback to their students. We will also highlight the importance of providing transparency of our teaching and learning design to support cultural and digital transformation in our learning institutions.

The important thing You learned in school (Drew Mayhills)

What was the most important thing you learned in school? Drawing inspiration from the collective insights of the audience, Drew will lead a powerful reflective practice using technologies that will set a foundation for participants to take the next steps towards making their subjects come alive. Please bring a Wi-Fi-enabled device of your choice to engage fully in the session.

Let's DREAM: The Future of Digital Technologies through a distributed professional network (Paul Moro, Datacom & Dr Rachel Sheffield, Curtin University)

Implementing the Digital Technologies curriculum in primary schools, where educators teach across all learning areas, has been identified as a challenging task, and teachers have indicated they need professional learning and significant support to effectively address this challenge. During 2017 the DREAM program was enacted in over 125 primary schools in WA, supporting teacher change through extended professional learning and development of a strong digital community. Through a distributed cluster approach, Digital Edge teachers empowered their Cluster teacher colleagues to develop teaching resources and integrate new digital technologies into their classroom practice, whilst developing plans to implement the Digital Technologies subject into the curriculum. This symposium showcases the work of the Digital Edge teachers demonstrating developed STEM materials and skills and discuss the Professional Learning Program, and how schools need to build a community of practise around their staff to empower transformational progress in STEM.

Conference Presenters

Adam Brooks (Kolbe Catholic College)

Adam Brooks is a digital technologies coordinator at Kolbe Catholic College in Rockingham. Adam will present a hands-on workshop on teaching maths through games programming in Scratch. Maths and programming fit together hand-in-hand. In this workshop you will learn how to teach concepts such as angles, Cartesian plan, algebra and more through Block-Based coding in Scratch. Delegates will need a laptop with internet access (or else situate in a Computing Lab)

Donna Buckley (John Curtin College of Arts)

Donna Buckley is a secondary mathematics teacher at John Curtin College of the Arts. The college won the Governor's STEM School award in 2015 and 2016, the college now provides support to other schools who wish to develop an integrated approach to STEM learning. Donna has been using the language of Python to develop the algorithmic and computational thinking of her students in mathematics. In this workshop, you will be given an opportunity to work through an HOUR of CODE activity that introduces participants to Python turtle. Donna will share how cross-curricular activities are being developed by the school and will share some year seven resources. The session will conclude with a brief introduction to the DAY of STEM platform and its online Cyber Security course. Participants will be registered for a free teacher account to the GROK learning platform. Participants are advised to bring their own device/computer to take full advantage of the session.

Dr. Cathy Cavanaugh (Catholic Education)

Dr. Cathy Cavanaugh is Head of Leadership, Learning and Research in the Digital Transformation team at Catholic Education Western Australia, and was previously Director of Teaching and Learning in Worldwide Education at Microsoft Corporation, and professor of educational technology at the University of Florida. Cathy's research and her 150 publications focus on technology-empowered teaching and learning, online and blended learning, teacher development, and mobile learning. Her work has been recognized for its impact with international awards including a 2016 International Society for Technology in Education (ISTE) *Making IT Happen* award. Cathy will present on Collaborative Networked Professional Learning for Educators. Networks of educators who focus on effectiveness and improvement of student outcomes can join together around shared approaches to inquiry with researchers to learn faster how to improve. New opportunities are available for schools to leverage powerful digital learning environments to become effective learning organizations that have agility in a complex environment. This session synthesizes key research-based approaches to building educator capacity in ways that embed professional learning as part of rather than apart from practice by leveraging digital environments for collaborative learning. Topics include digital Communities of Practice, teacher inquiry, and applying analytics to improve learning.

Stephen Dornan (MLC)

Stephen Dornan has been involved in Education for the last 18 Years. He has taught in both Public and Private Schools in co-educational and single gender environments. As a teacher of Science and Digital Technologies, he facilitates on-going Teaching and Learning Innovation Workshops and Professional Learning Teams. He has worked as a Technology Integration Specialist, is an Apple Distinguished Educator and is the current the Head of Research and Learning Innovation at Methodist Ladies College. In this role, he is Head of the Walter Shepherd Resource Centre, Head of Digital Technologies Curriculum and the key facilitator of Educational Research and Innovation from K-12 at MLC. In his presentation, Stephen will explore tech-fueled Peer Instruction as a powerful form of teaching, learning and formative assessment. Peer instruction is an innovative collaborative learning technique that enables students to

build knowledge together. This presentation focusses on the tech-supported pedagogies that support the successful implementation of peer instruction as a teaching and learning strategy. Teaching methods covered in the presentation include; "Flipped" teaching, constructivism, individual and peer formative assessment and validation tasks. Data collected and analysed from Stephen's peer instruction lessons will also be presented, demonstrating a depth of insight into teaching and learning that was previously inconceivable.

Daniel Groenewald (MLC)

Daniel Groenewald is an educator, writer, presenter and training consultant with a decade's experience in research, writing, curriculum development and teaching. Daniel has a Masters of Education and a Masters of Literature from The University of Melbourne and has taught English, Literature and Communications in tertiary and secondary settings. Daniel has presented professional development to adults in the education and Information learning technologies' sector and has published articles on teaching, learning and literature. Daniel currently works as a Senior English and Literature teacher at Methodist Ladies' College (Perth) and as an Educational Consultant. Daniel is presenting pedagogical opportunities with digital technologies. Adaptive learning, blended learning, webquests, student-centred inquiry and truck loads of software provide new opportunities to vivify the curriculum. Daniel's presentation explores the skills, dispositions and habits required to thrive as a teacher in the digital age.

Brad Howard (Independent Consultant)

Brad Howard is a passionate educator who has witnessed other education systems internationally, managed state and national companies, owned and operated his own businesses, created flexible rapid growth businesses and was once an Assistant Principal in the WA education system. Brad strives to make his presentations interactive, thought provoking and an expression of his passion for great education. Brad's talk will focus on STEM subjects and the rapid technological progression of our world. 50% of jobs now being replaced by robots within 10 years, •40% of jobs will require coding skills, •98% of kids at 5 years old are creative geniuses and only 2% remain by age 44•Youth unemployment at record levels around the worldSTEM / STEAM subjects are the core of creativity which enable the kids of today to develop a future for themselves. Through the use of technologies that surround them – from cardboard and paper – through to coding and robotics the kids are designing and creating paths we have not yet explored. Around the world countries are changing their attitudes to WHY and HOW and with WHAT they educate their kids. Rapid change requires flexible, cost affordable, passionate and resilient education.

Dr Umera Imtinan (UWA)

Umera holds a PhD in Information Systems and Masters of Computer Science. Her research interests include mobile learning, education technology, STEM and Computer Science education. She is working as sessional academic at Graduate School of Education, UWA. She has 10 years of experience in teaching Computer Science, Information Systems and Education Technology courses to university students. Umera also holds Cert IV in Training and Assessment. She provides Computer Programming training workshops (HTML, CSS, Javascript, SQL, Python) to teachers and school students. At her Table Display in the conference, Umera will showcase her programming workshops on offer for teachers. She believes in understanding Computer Science and programming concepts before kick starting coding. Conceptual understanding of core Computer Science and object oriented programming concepts will enable learners to self-teach any programming language available today and any unfolding new programming languages in the future.

Hall Jackson (Datacom)

Hall Jackson is a Primary School Educator with a focus on interactive multimedia technology. With experience in education department and Private schools in Western Australia, as well as working in the UK as a supply teacher and then Japan as an English language teacher. Hall had been working for Keepad Interactive for the last ten years, helping schools with interactive solutions for their classrooms. Now working with Datacom, helping schools with device and network management as well as local cloud options. Hall has presented at many technology and science conferences over the years and they still invite him back so he must be doing something useful. Hall is presenting a workshop titled Coding and Control Systems. The dependence on digital technology to improve the world around us is happening rapidly so that everything runs efficiently, effectively and makes life easier for us! Research is showing that the use of digital technologies can increase student motivation, enhance visual and spatial awareness, support different learning styles, accelerate the design process and allow students to communicate their ideas in new and improved ways. In this thought provoking session, participants will learn through a hands-on exploration of technology how by using simple coding systems to set up animatronics, puppetry, modelled automated machines and robots.

Geoffrey Kaye (CompuEd)

Geoff has a MSc(Med) and holds a position as STEM Professional in Schools with CSIRO. He has a special interest in children with visually related reading and learning difficulties. He has a passion for the 'science' of illusions and a special interest in cognitive science. Geoff also runs a private practice as an optometrist on the campus of the University of Western Australia. Geoff will be presenting a joint session with Ian Wilson. During his Table Display at the conference, Geoff will have following demonstrations:

ZEP Island Game

One of the biggest problems in delivering STEM is integrating each of the STEM subjects into project-based-learning activities. The ZEP Island game has been specially designed to provide a platform for teachers to achieve this with minimal effort. The game provides a platform for students to design and build a sustainable community through a set of calculating, experimenting, designing and making activities. Students are challenged to grow food, produce clean water, generate electricity and provide shelter for miniature people – ZEPs - in a 0.2m² space.

Ultra violet Light Demonstrator Kit

Exposure to ultraviolet (UV) radiation and sunburn during childhood is known to increase the risk of skin cancer and eye damage. However UV light cannot be seen by the human eye and so is difficult to demonstrate. We have developed a unique demonstration kit which can be used in the classroom to demonstrate the effect of UV radiation on human skin through the use of photosensitive discs.

Scanmarker

ScanMarker is an ePen which dyslexic students can use to scan short sentences from a text book or printed information sheet. The Scanmarker will transfer the text into any word processor

Dr Susan Ledger (Murdoch University)

Dr Susan Ledger - Associate Dean Engagement and School Partnerships at Murdoch University, Perth WA. Susan researches education policy and practices related to schooling in diverse contexts including rural, remote, multicultural and international schools and the preparation of pre-service teachers to work within these contexts. Dr Susan and Dr Fiona from UWA will be jointly presenting the session about use of AVATARS by pre-service teachers at UWA to practice teaching. Currently pre-service teachers (PSTs) practice their lesson planning, behaviour management and communication skills by interacting within 'real life' situations that are naturally occurring and context specific within their practicum experiences in schools. Although these are essential experiences, they are not ideal for the beginning teacher. Murdoch University and UWA are working together on a project using Murdoch Mursion AVATARS in a mixed reality learning environment with UWA preservice teachers to explore the opportunities this environment offers to practice and rehearse the skill and art of teaching before

sending students into real life classroom settings. UWA students in conjunction with the Futures Centre and Murdoch AVATARS provide a non-threatening platform that allows just in time feedback and opportunities to reflect on practice that is not afforded in a typical classroom setting.

Severine Lee (UWA)

Severine is a digital innovative learning consultant at UWA, a passionate educator and mentor with over 10 years' experience. Her portfolio includes teaching vocational and higher education courses, professional development, instructional design for education and corporate training with a focus on eLearning and blended solutions. Having worked in France, the UK and Australia means her experience encompasses the nuances and learning styles of different cultures.

Mike Lefroy (Independent Consultant, Mikelestroy.com)

Mike has written 17 books for children – many about ships and the sea. The latest is a republication of *The Catalpa Escape* - co-authored with Joy Lefroy- that is now supported by a number of innovative digital resources devised by Robyn McKean. Mike currently works as a freelance education consultant and writer. Robyn McKean and Mike Lefroy (author *The Catalpa Escape*) work in partnership to demonstrate how picture books can be used in the classroom to bring local stories to life, to stimulate the imagination, and to build a sense of community. Then they demonstrate how students can use digital technologies for inquiry based learning to recreate and extend these stories, using animation and augmented and virtual reality for accountability.

Michael Loh (Shenton College)

Michael is a classroom mathematics teacher at Shenton College. Prior to his change in career, he was a practicing engineer for over 25 years and had lectured at RMIT University for 5 years. He believes that scientific innovation has the power to change the world and a teacher should encourage the younger generation to take up the challenge by pursuing a career in mathematics and science. Therefore, to be innovative as a graduate teacher, he has started engaging students in mathematics learning by creating his own videos as well as using other technology such as Google classroom. Michael's presentation provides some practical examples on how technologies are incorporated in mathematics classroom teaching, in particular the use of videos and Google classroom. The session will discuss how to create one's own video and how to upload the videos on YouTube (examples and demonstrations). How the videos can assist a graduate teacher in helping students in the understanding of mathematics concepts will be discussed. The potential to assist students with disability (e.g. deaf) is also greatly enhanced by the use video teaching. The pros and cons for a graduate teacher in using this form of instructions will also be outlined. Participants will have the chance to experience how to create his/her own video.

Jane Loxton (UWA)

Jane Loxton is a dedicated professional with over 25 years of exemplary teaching and leadership experience within the early childhood education sector. Jane's professional experience includes the childcare sector, private and public school sector and tertiary education. Jane is currently the Professional Practice and School Partnerships Coordinator at UWA. Her research interests are in the humanities and early childhood education. Jane is presenting on Engaging with Technology with new HASS curriculum (Early Childhood and Primary context). Since the 1990's, Western Australian educators have experienced a number of changes to mandated policies, frameworks, and curriculum learning areas. In 2016, a new Humanities and Social Sciences (HASS) curriculum was created as part of these education reforms and curriculum changes. Over the past few decades, HASS has experienced not only policy and structural amendments but many name changes as well, making it challenging for teachers to gather suitable resources. This presentation will demonstrate how Digital Technologies can bring HASS to life by accessing resources through the ages.

Jane Mangano (EarlyWorks)

Jane Mangano has worked as an early childhood and inclusive education teacher, university lecturer and learning advisor. Early in her career Jane developed an interest in learning difficulties and, together with her husband Phil, developed award winning software package, ReadOn. In her time as Learning Advisor at the University of Notre Dame she was awarded the Vice Chancellor's Award for developing an outcomes-based strategy to support students. Jane is currently director of EarlyWorks Education Pty Ltd, developers of EarlyWorks, a comprehensive, cloud-based, early childhood programming, documentation, child portfolio and family communication system. Jane's presentation will focus on Early Childhood Programming and Documentation Software developed by EarlyWorks. This presentation will include a discussion of the opportunities and potential challenges of deploying a digital programming and documentation tool within an early childhood setting. This will be followed by a brief demonstration of EarlyWorks, showing how it is used to support educators in delivering quality education and care. EarlyWorks supports the Early Years Learning Framework, My Time, Our Place and/or any state-based kindergarten or customised curriculum.

Drew Mayhills (Institute for Professional Learning)

Drew Mayhills is a passionate lead educator, instructional coach, staff trainer and early career researcher with a demonstrated history of success in a variety of school contexts including the public and independent school systems, tertiary education, immigration detention and the disability sector. His capacity to design and deliver high quality learning experiences, framed by a strong commitment to values-based leadership and research-based best practices, enables him to lead enduring, positive and meaningful change throughout the Australian educational community.

Dr Fiona Mayne (UWA)

Fiona Mayne has a PhD in early childhood research ethics and participation. She teaches technology education (early childhood/primary) to preservice teachers at the Graduate School of Education. Her current research interests include enhancing the quality of young children's research participation, digital influences on children's learning environments, and use of digital technologies and mixed reality in pre-service teacher education. Dr Fiona will be presenting a joint session with Dr Susan from Murdoch University about use of mixed reality platform by pre-service teachers in UWA.

Robin McKean (ECAWA)

Robin is currently working with both Heritage Perth, helping in development of a digital learning portal and UWA as a sessional tutor in The World of Mobile Learning. She is a passionate advocate for the invisible and meaningful use of Digital Technologies across all Curriculum Areas. Her digital delivery of the Western Australian History (HASS) Curriculum has evolved into a thematic and empathetic thread for the STEM learning activities. These and Heritage Perth Digital Learning Design projects and place based transdisciplinary learning activities have enhanced student learning and piqued teacher enthusiasm and interest at Teachmeets, state and national conferences across the HASS, History, Geography and Digital Technologies curriculum areas. Robin will present on Working safely with data as you explore, collect, sort and map via a cross curriculum range of activities and resources.

Paul Moro (Datacom)

Paul Moro has over 27 years' experience in education and training industries, with specialised expertise in curriculum development and computing technology. As a leader and innovator in emerging technologies in his field of work, Paul has managed a number of key strategic projects in education

focused on building capacity in leadership for change. Paul has broad and extensive experience working with schools in the delivery of pedagogically grounded technology learning. This included Curriculum Consultant: Technologies at AISWA, Lecturer in Education at ECU, Manager of Technology at Scotch College and Curriculum Officer at Curriculum Council WA.

Steven Payne (CSER)

Steven works for the University of Adelaide as a project officer for the CSER Digital Technologies programs. He facilitates free PL sessions across WA, providing on-the-ground support for schools, helping teachers navigate through the new Digital Technologies curriculum requirements. He has worked as a teacher and education consultant in the UK and WA, supporting schools to make effective use of ICT across all learning areas and improve learning outcomes. Steven is also a Microsoft Learning Consultant and runs Standout Education, a training and consultancy company, supporting local schools to enhance learning and teaching with technology. In this seminar Steven will give an introduction to the CSER Digital Technologies resources, including free, comprehensive online courses for Pre-Primary to Year 10 teachers and an online community where over 13,000 Australian teachers are sharing resources and ideas. He will give an overview of the WA Digital Technologies curriculum, including examples of how teachers are integrating the new subject area into their lessons.

Kane Pittard (Butler College)

Kane Pittard is a foundation member of Butler College in HaSS(History) teacher and the lead teacher for Digital Technologies and Computer Science (ATAR) programs. Prior to completing his DipEd in 2011 he worked as an IT professional, holds a Masters in Medieval and Early Modern Studies (UWA) and a current PHD candidate in History at UWA. He is active in supporting the use of digital technologies and programming across the school, blending his digital skills with the study of history, authentic project based learning, STEM projects, international tours and classical clubs such as Debate and latin. Kane's presentation is on Modelling Ancient Rome with Digital Technologies. Investigating Ancient Rome faces the problems of distance and time separating our students from events. It is challenging for students to fully understand the spatial relationships between and their roles solely from texts, pictures and films. The case study used 3D design and printing to create scale models of Ancient Roman buildings and augmented reality to provide context and explanation of their roles. I will outline the tools and process I used to complete this project and the lessons learnt for future projects.

Sheree Pudney (CSIRO STEM Professional)

Sheree is a CSIRO STEM Professionals in Schools partner with St Hilda's Anglican School for Girls. Over the last two years, Sheree and the teachers at the school have developed and taught Arduino lessons to over 150 students. Sheree has over 20 years of experience in the Information Technology industry and a long-held interest in education and teaching. Sheree is presenting a workshop on Arduino in the Classroom. Arduino in the Classroom will show you how to build and program simple electrical circuits using lights, sounds, motors and sensors. You can try your hand at the exact same lessons that have been run in classrooms and take this learning back to your students. Experience how these fun, hands-on activities engage students, support the new Digital Technologies curriculum and integrate with other learning areas.

Macie Rudoff (MLC)

Macie is inspired by the potential to use educational technologies to create a truly personalised learning experience for all students. With a mindset of continuous evaluation and innovation, she pushes traditional models of teaching to become more learner-centred, individualised and highly engaging. Through her work as an educational technology consultant and educator of K-12 and adult learners, she draws on many years of collaboration and case studies to transform learning at every level. Macie's

presentation will look at the practical ways in which educators are able to use technology to enhance and transform teaching and learning. We will consider meaningful applications of technologies that allow teachers to better differentiate, personalise, diversify and provide meaningful and timely feedback through their teaching. Today's learners are expected to embody the 3Cs (Critical & Creative thinking and Collaboration). However, students are rarely given the opportunities to develop these skills in a traditional, teacher-centred learning environment. The presentation will share an overarching view of why learning technologies are essential in the shift to learner-centred education, as well as how technology can be used in meaningful ways to transform classroom workflows. I will focus specifically on examples of multimodal resources and inquiry-based learning experiences to put students in control of their own learning.

[Dr Rachel Sheffield \(Curtin University\)](#)

Dr Rachel Sheffield is a Senior Lecturer at Curtin University where she teaches pre-service teachers in the STEM and Digital Technology space. She has an extensive record of awards in tertiary education including 4 Curtin University awards and a National award from the Office of Teaching and Learning, Citation in 2016 for inspiring tertiary students in science education and an International STEM award from ISTE (International Society for Technology Education) in 2016. She has an interest in Makerspace and presented at ISTE in 2016 on her work creating the STEMInists and working with female students in University and primary schools. Dr Rachel is presenting keynote jointly with Paul Moro on their project titled 'Lets DREAM: Delivering a sustainable approach to building a Digital Technologies story through a long term, action research approach to professional learning'

[Bhavneet Singh \(Department of Education\)](#)

Bhavneet Singh is an educational leader with experience in building staff capacity in emerging technologies and developing readiness to co-create innovation in schools. She is also the primary schools coordinator for the Educational Computing Association of Western Australia and supports educators with the implementation of Digital Technologies curriculum and integration of technologies across the curriculum in meaningful and innovative ways. Bhavneet recently established TeachMeet WA, a supportive, cross sectoral professional learning community that flourishes in an innovative blended environment. Currently, in the role of a Principal Consultant, Department of Education she provides leadership in the implementation of Technologies curriculum and shaping the STEM agenda. Bhavneet's talk will focus on Staying in Beta Mode. Do you look at the Digital Technologies curriculum and wonder about what the content is all about, how you are going to teach it and how you will maintain currency in this dynamic subject? The magic lies in creatively finding the intersections between technological, pedagogical and content knowledge. The session will focus on clearly aligning the right mindset, skillset and toolset to institute ourselves as lead learners in our Digital Technologies classes.

[Ian Wilson \(Coolbinia Primary School\)](#)

Ian Wilson is a technologies specialist at Coolbinia PS which is a Teacher Development School (TDS) for Technology and Science. Ian is a leading exponent of STEM and digital technologies and has several years of experience with robotics (LEGO EV3, Sphero) and coding. In his workshop Ian will be presenting about Integrating Digital Technologies into a Successful STEM Program. He and Geoff will provide an overview of the Digital Technologies program at Coolbinia PS this year providing examples and ideas of how to successfully integrate activities into a STEM unit. There will also be a hands on session with two unplugged Digital Technologies activities; A LEGO building challenge and an Introduction to Algorithms task. Finally key resources will be shared to assist with getting started with the Digital Technologies curriculum.

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