

12 - 5.30pm, Tuesday 21 November

# Back to the Literature: Learning theories in the age of digital participants

Hosted by UNSW Medicine & Health

On campus: AGSM, Pioneer International Theatre

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Time	Topic	Presentation title	Abstract
12 - 12:15	Opening	<b>Acknowledgment of Country &amp; Opening</b> <b>Presenter:</b> A/Prof. Linda Ferrington and Dr Megan Kalucy	
12:15 - 12:35	Transformative Teaching Approaches	<b>We Should Be Teaching Students How to Fail</b> <b>Presenter:</b> Dr Kelsey Burton	Abstract
12:35 - 12:55		<b>Role playing in teaching science and technology.</b> <b>Presenter:</b> Dr Alfred Krzywicki	Abstract
12:55 - 1:15		<b>From Passive to Dynamic: Active Learning and Reflection in a Biomedical Engineering Course</b> <b>Presenter:</b> Dr Rita Prestigiacomo	Abstract
1:15 - 1:30		<b>Questions - Chair:</b> A/Prof. Linda Ferrington	
1:30 - 1:50	Innovative Teaching Approaches	<b>If we don't who will?</b> <b>Presenter:</b> A/Prof. Zixiu Guo and A/Prof. Carmen Leong	Abstract
1:50 - 2:10		<b>Evaluating the adoption of educational technology: A typological matrix scale</b> <b>Presenter:</b> Dr Jasper Hsieh and Gee Chong Lin	Abstract
2:10 - 2:30		<b>Supporting the development of Self-Regulated Learning skills in First-year undergraduates: Impact on learning, community, and the student experience</b> <b>Presenter:</b> Dr Helena Pacitti and A/Prof. Jason Lodge	Abstract
2:30 - 2:45		<b>Questions - Chair:</b> Dr Megan Kalucy	
2:45-3	Break		
3 - 3:20	Revolutionising Education with AI	<b>An Innovative Education Approach Integrating Service-Dominant Logic and Artificial Intelligence</b> <b>Presenter:</b> Dr Terrence Chong and A/Prof. Ting Yu	Abstract
3:20 - 3:40		<b>Generative AI in Computer Science</b> <b>Presenter:</b> Dr Paul Hunter	Abstract
3:40 - 4		<b>Generative AI and actuarial education</b> <b>Presenter:</b> Dr Andres Villegas	Abstract
4 - 4:15		<b>Questions - Chair:</b> Prof. Isabelle Jalbert	
4:15 - 4:35	Enhancing the Learning	<b>Engaging and inspiring student learning and research with mobile technologies</b> <b>Presenter:</b> Dr Matthew Brodie and Sixiao Li	Abstract
4:35 - 4:55		<b>Art &amp; Design Cultural Learning Program</b> <b>Presenter:</b> Dr Grant Stevens, Dr Sarah Jane Moore and Brian Landrigan	Abstract
4:55 - 5:15		<b>Questions - Chair:</b> Ms Nancy van Doorn	
5:15 - 5:30	Closing	<b>Closing &amp; Thanks</b> <b>Presenter:</b> A/Prof. Linda Ferrington and Dr Megan Kalucy	

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## We Should Be Teaching Students How to Fail

**Presenter:** Dr Kelsey Burton

*"It doesn't matter how hard you fall. The important thing is picking yourself up, dusting off, and getting back on the horse."*

Imagine growing up on a farm, in a low-income area, and not learning to how to read until year 3. A recipe for disaster, right? Yet, against all odds, you flourished.

Hailing from the heart of Kentucky with an "Unbridled Spirit," Dr. Kelsey Burton will showcase how "failing forward" and embracing setbacks are stepping stones to learning and success. In this workshop, you'll not only hear an inspiring personal story but also leave equipped with practical insights, simple teaching practices, and engaging course activities that will empower you to create an inclusive and psychologically safe learning environment tailored to the diverse needs of your students. The same practices resulted in an undergraduate MyExperience score of 5.67 when first implemented in 2016 which increased to 5.97 when embedded into a postgraduate leadership course in 2022.

Join Dr. Kelsey Burton and learn how to pave the way for your students' transformational learning journey, overcoming challenges and bravely failing forward.



**Dr Kelsey Burton** is a passionate educator and coach, dedicated to creating an authentic and practical learning experience, spanning her courses in business innovation, negotiations, and leadership. Her Ph.D. research focused on the emergence of narcissistic/psychopathic leadership and is currently collaborating with Juliet Burke to evolve her inclusive leadership research into a teaching model aimed at cultivating a naturally inclusive culture. She is also engaged working with Elaya Yang, a Ph.D. applicant, to explore AI in neurodivergent learning and development.

To gain deeper insights, we invite you to attend her presentations at UNSW's Education Festival 2024.

1. Why We Should be Teaching Student How to Fail (Tuesday, 21 Nov)
2. An AI Odyssey: Crafting Courses at the Speed of Trimesters (Wednesday, 22 Nov with Rushi Vyas)
3. Leadership Development, Self-Coaching, & Authentic Assessments For Our Future Business Leaders (Wednesday, 22 Nov)
4. Manage Emotions, Avoid Explosion (Friday, 24 Nov with Elaya Yang)



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## Role playing in teaching science and technology

**Presenter:** Dr Alfred Krzywicki

A small experiment conducted at the University of Adelaide explores the effectiveness of role-playing as a pedagogical tool in enhancing student engagement in active learning and blended teaching approaches. Previous research shows that diverse role-playing scenarios can be employed in different educational contexts, ranging from paper-reading seminars to computer science courses. While this method is universal and can be applied to any university course, role playing seems to be best suited for courses teaching complex physical systems commonly found in science and technology.

In this presentation, we will talk about an experiment conducted in a Machine Learning course at the University of Adelaide, where students assumed the roles of neurons to simulate neural network operation. Each "neuron" had unique responsibilities and functions, fostering communication and collaboration among students.

We found that the role-playing exercise exceeded time expectations due to heightened engagement, prompting students to provide positive feedback. Results were encouraging, and we consider applying this approach in related courses such as Natural Language Processing and Data Mining.

In summary, the method of role-playing could be a valuable instructional tool to promote student participation, collaborative learning, and comprehension across a variety of academic disciplines and teaching contexts.



**Dr Alfred Krzywicki** is a lecturer currently affiliated with both the University of New South Wales and the University of Adelaide as a researcher and educator. His research and teaching areas include Artificial Intelligence, Machine Learning and Natural Language Processing. As an academic teacher he has extensive experience in course design and update with modern tools and methods. He is passionate about inspiring and engaging students in active learning and adapting teaching approaches to individual student's abilities.

## From Passive to Dynamic: Active Learning and Reflection in a Biomedical Engineering Course

**Presenter:** Dr Rita Prestigiacomo

The Regulatory Requirement of Medical Technology course (BIOM9410) requires students to familiarise themselves with the regulations requirements for medical devices across Australia, Japan, North America and Europe. Traditionally regarded as a content and knowledge-dense course, it has historically had low student satisfaction rates (e.g, 71.9% agree in 2018 to 79.3% in 2022). This prompted the course convenor to make improvements. With support from a school-based academic developer, the course convenor embarked on a transformative journey in 2022, achieving a 93.5% student satisfaction rate in 2023. This presentation provides an overview of the operationalisation of active learning and a reflective approach to learning. Active learning is an instructional method in which students actively participate in their learning process. Reflection puts students' awareness into the depth of what they learn with the breadth of their learning experience. Our aim is to demonstrate how this approach profoundly impacted student engagement and motivation. We argue that genuine innovation in education is not about adopting the latest high-end technology but in deeply understanding the nature of what is being taught, the learning context and students' needs.



**Dr Rita Prestigiacomo** is a Lecturer (Nexus Fellow) at the Graduate School of Biomedical Engineering, where she previously worked as an academic developer and post-doctoral fellow. With a PhD in Education from the University of Sydney, she brings a rich background in teaching. Dr. Prestigiacomo areas of expertise include curriculum development, reflective teaching and learning practices, student engagement, group work and co-design work, all underpinned by a practical approach bridging theory and practice.



## If we don't who will?

**Presenters:** A/Prof. Zixiu Guo and A/Prof. Carmen Leong

Drawn upon the three inter-related research projects we have conducted since 2020 in understanding how information technologies can be integrated into our teaching with the goal of not only promoting the positive use of the technology, but also minimising the negative impacts imposed by the inappropriate use of the technology on students' learning, we have developed and refined our technology-mediated teaching approach in our teaching. Specifically, aligning with Community of Inquiry (CoI) Framework (Garrison et al. 1999), we emphasised the importance of online social learning community to promote social presence of both students and teaching staff. After realising that students were overwhelmed by the prevalence of technologies in our online teaching, we conducted an Action Design Research (ADR) study to generate design knowledge for mitigating technostress—stress induced through interactions with technology (Ragu-Nathan et al., 2008). We further refined our design principles through an experimental study with a focus of alleviating technostress through stress-is-enhancing mindset change (Dweck 2006). The refined teaching approach has been adopted in our teaching with great success.

- 1.DWECK, C. S. 2006. Mindset: The New Psychology of Success. *Library Journal*. Random House Digital, Inc.
- 2.GARISON, D. R., ANDERSON, T., & ARCHER, W. 1999. Critical Inquiry in a Text-Based Environment: Computer Conference in Higher Education. *The Internet and Higher Education*, 2 (2), 87-105
- 3.RAGU-NATHAN, T., TARAFDAR, M., RAGU-NATHAN, B. S. & TU, Q. 2008. The consequences of technostress for end users in organizations: Conceptual development and empirical validation. *Information systems research*, 19, 417-433.



**A/Prof. Zixiu Guo, Ph.D.**, is a dedicated educator and researcher passionate about harnessing the potential of information technologies for a brighter world. As the Deputy Head of the School for Education, she excels in curriculum design and is committed to innovating teaching practices in technology-mediated learning environments. Her primary research focus is ensuring a positive and enriching learning experience for students. Dr. Guo's work contributes to a future where technology empowers education and creates lasting impact.



**A/Prof. Carmen Leong** is a business educator with experience in curriculum development and teaching delivery of courses in technology management. She believes in bringing to the classroom the latest business practices as technology and its application in the real world is ever evolving. She is passionate about translating what she has learned in her case study research of emerging tech business practices in her teaching.



## Evaluating the adoption of educational technology: A typological matrix scale

**Presenter:** Dr Jasper Hsieh and Gee Chong Lin

Employing educational technology in teaching has become an integral aspect of modern education. To advance the concept of teachers as designers, it is imperative to establish a middle-range theory that assists educators in navigating the intersection of pedagogical needs and contextual challenges when integrating educational technology. As an initial endeavor to conceptualize the utilization of educational technology across various pedagogical contexts, this study introduces a typological matrix scale model. To test the validity our theory, this study collected 19 months' worth of user experience data from the implementation of Microsoft OneNote as the electronic laboratory notebook in diverse science undergraduate courses at a public Australian university. Through this model, we elucidate four key phenomena and their interrelationships within the convergence of pedagogy and context. Our findings shed light on implications for learning design practices and provide directions for future research in the field of educational technology.



**Dr Jasper Hsieh** is a Senior Education Designer at PVCESE and Adjunct Lecturer at the School of Education. His research and teaching specialise in teacher education, educational design and TESOL. His current research projects are EdTech evaluation and EMI (English as Medium of Instruction) in multilingualism.



## Supporting the development of Self-Regulated Learning skills in first-year undergraduates: impact on learning, community, and the student experience

**Presenters:** Dr Helen Pacitti and A/Prof. Jason Lodge

Self-Regulated Learners achieve academic success by employing specific cognitive, metacognitive, and resource management strategies to help them achieve their goals (Pintrich et al., 1993). In online environments, Self-Regulated Learning (SRL) strategies are associated with better academic performance (Broadbent, 2017; Broadbent & Poon 2015). We will present a novel but evidence-based approach to supporting undergraduates' development of SRL skills in the context of a fully online psychology course. Completion of seven SRL activities across the term was incentivised by embedding them as micro-assessments within the summative assessment structure of the course. We will present qualitative and quantitative data from students showing that embedding content specific SRL activities into the summative assessment structure has resulted in improved academic performance, increased engagement, and built a stronger online learning community. Encouraging and supporting first-year students to adopt SRL strategies early in their tertiary studies will improve academic performance, enhance the student experience, and facilitate lifelong learning.



**Dr Helena Pacitti** is an Education Focussed Academic at the University of New South Wales. She teaches undergraduate Psychology, specialising in online learning environments. Her teaching philosophy centres around cultivating Self-Regulated Learning skills and implementing evidence-based teaching strategies from Cognitive and Behavioural Psychology. She has a passion for teaching first-year students and creating a nurturing and supportive online learning community.



**Jason Lodge** is Associate Professor of Educational Psychology and Director of the Learning, Instruction, and Technology Lab in the School of Education and is a Deputy Associate Dean (Academic) in the Faculty of Humanities and Social Sciences at The University of Queensland. He was one of the inaugural Visiting Teaching Fellows at UNSW in 2022.



## An Innovative Education Approach Integrating Service-Dominant Logic and Artificial Intelligence

**Presenters:** Dr Terrence Chong and A/Prof. Ting Yu

Drawing on concepts and premises from the service-dominant logic theory (SDL; Vargo and Lusch 2014; 2017) and contemporary uses of artificial intelligence in education, we propose a new teaching model to address the gaps of both teacher-centred pedagogy (e.g., traditional lecture) and student-centred pedagogy (e.g., inquiry-based learning, flipped classroom) that are too rigid/inflexible and do not fully consider the contextual factors that may affect engagement (e.g., diverse teacher and student needs, preferences and backgrounds, and different teaching delivery and learning modes). We will present the situational and pragmatic guidelines of this teaching model to educators to better meet the needs and demands of different stakeholders involved in education (e.g., teachers, students, education institutions) for engaging teaching and learning experience.

### References

Vargo, S.L. and Lusch, R.F., 2014. Service-dominant logic: What it is, what it is not, what it might be. In *The service-dominant logic of marketing* (pp. 61-74). Routledge.

Vargo, S.L. and Lusch, R.F., 2017. Service-dominant logic 2025. *International journal of research in marketing*, 34(1), pp.46-67.



**Dr Terrence Chong** specializes in digital marketing, services marketing, and data analytics. Since 2018, he's held various roles at UNSW, including course convenor and lecturer. Skilled in curriculum design, he's adept at both online and face-to-face teaching methods. Currently, Terrence is researching the use of AI chatbots as frontline service agents and exploring metaverse applications in healthcare.



**Dr Ting Yu** is an Associate Professor in Marketing at the University of New South Wales. Her major research interests include: artificial intelligence in (healthcare) service delivery, marketing agility, organisational ambidexterity (service versus sales; service productivity versus service quality, efficiency versus flexibility), relationship termination management, and consumer emotions.



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## Generative AI in Computer Science

**Presenter:** Dr Paul Hunter

We summarize a systematic investigation into the incorporation of generative AI into the Computer Science curriculum.



**Dr Paul Hunter** completed a BSc in mathematics at the University of Tasmania, before moving to the UK to do a PhD in Theoretical Computer Science at the University of Cambridge. In 2008 he was awarded an EPSRC Postdoctoral Fellowship, which took him to the University of Oxford for five years. Following this, Paul worked as a postdoc at the Université Libre de Bruxelles for three years, before returning to Australia in 2016. His area of expertise is (unsurprisingly) Theoretical CS, in particular formal verification, graph theory, and algorithms.



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## Generative AI and actuarial education

**Presenter:** Dr Andres Villegas

Generative artificial intelligence (AI) tools are disrupting and transforming higher education as well as the workplace, especially in fields that rely on quantitative and analytical skills, such as actuarial science. In this project, we aim to understand how generative AI impacts actuarial education and practice, and how we can adapt our curriculum and pedagogy to prepare our students for the future of learning and working. We will conduct a review on the use of generative AI in the tertiary sector and in higher education. We will also survey the usage of generative AI tools (such as ChatGPT, Bing Chat, Copilot, etc.) in different types of actuarial courses (technical, qualitative, data analysis and coding) in our school. Based on our findings, we will propose some recommendations for integrating generative AI into higher education teaching and learning, and address some of the challenges and opportunities that arise from this emerging technology. The outcome of this project will be the basis for a school position report on the usage of generative AI in actuarial education, covering aspects such as assessment and curriculum design.



**Dr Andrés Villegas** is a Senior Lecturer at the School of Risk and Actuarial Studies and an Associate Investigator at the ARC Centre of Excellence in Population Ageing Research (CEPAR) where he was previously a Research Fellow. Andrés completed his doctoral studies at Cass Business School in London focusing on the modelling and projection of mortality. Before his doctoral studies he obtained an MSc degree in Industrial Engineering from Universidad de Los Andes (Colombia) and worked as a risk analyst at one of the biggest Colombian life insurance companies. Andrés's research interests include mortality modelling, longevity risk management and the application of analytics techniques in actuarial science and finance.



## Engaging and inspiring student learning and research with mobile technologies

**Presenters:** Dr Matthew Brodie and Sixiao Li

Effective teaching involves inspiring students through active learning experiences. During and post COVID a significant number of students have struggled to re-engage with education and risk failing to graduate and missed learning opportunity. UNSW and many educators have responded to this major challenge through offering online content, flipped classrooms and improved flexibility. Students, however, increasingly face demands for time and attention. Mobile technology, machine learning content optimisation and the growing addiction to the instantaneous socioemotional rewards of social media provide escalating distractions that prevent effective learning. This presentation aims to address these critical issues by creating active learning experiences that inspire students and include the use of popular mobile technologies. As seen on 9News [<https://www.youtube.com/watch?v=uxRdCk6JE7o>] and ABC's Behind the News and streamed to students across Australia [<https://www.abc.net.au/btn/high/phone-distraction/102733556>] three technology case studies will be covered from the BIOM9541 Mechanics of the Human Body course. This includes the "Accidents while Texting" experiment, student "Validation of Smartphone Activity Tracking" and OpenCap, a new marker-less motion capture system, using smartphone technology at UNSW's Village Green. Teacher and student perspectives will be presented and provide insights into success and shortcomings. Evidence of impact include two student co-authored scientific publications [cited 62 times], national and international media. We discuss how components in a successful news story are similarly present in creating great teaching and learning experiences and how young people when provided with new learning opportunities can collectively come up with solutions to problems we face. We conclude that many opportunities to inspire students can be hidden in plain sight to be revealed through innovative use of existing technologies.



**A/Prof. Matthew Brodie** is a Neuroscientist and Engineer, he develops and tests new technologies to help people with neurological conditions. This includes the "Steps against Parkinson's disease" Joint NHMRC – European Program. I teach BIOM9541 Mechanics of the Human Body, coordinate BIOM4951-53 Biomedical Engineering Thesis Projects and inspire students through mobile technologies [<https://www.youtube.com/watch?v=QJQ1OIHBHJI>]. In 2023 my team was presented with the UNSW Excellence Award for Social Engagement for Walking Tall's new phone app used by thousands of people with Parkinson's disease, download for free on iOS [<https://apps.apple.com/au/app/walking-tall/id1450872540>] and Android [<https://play.google.com/store/apps/details?id=com.walkingtallsnack>].



**Sixiao Li** is a fifth-year Biomedical Engineering student at UNSW who started in 2018, she has experienced both on-campus and online learning due to COVID-19. It was challenging returning to campus post-COVID. I took the BIOM9541 Mechanics of Human Body taught by A/Prof Matthew Brodie. The hands-on experiments conducted through multiple innovative teaching methods have allowed me to seamlessly transition back offline and regain my passion in the Biomedical area. I plan to start my PhD in 2024 at UNSW.



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## Art & Design Cultural Learning Program

**Presenter:** Dr Grant Stevens, Dr Sarah Jane Moore and Brian Landrigan

This presentation introduces the aims and methods used in developing a series of video resources as part of the UNSW Art & Design Cultural Learning Program (CLP). Conceived by Indigenous Professors of Practice in the School of Art & Design, the CLP aims to centre, celebrate, and amplify Aboriginal and Torres Strait Islander voices, cultural practices, and knowledges in the Art & Design curriculum and beyond. Throughout 2023, the School has worked with leading artist and educator, Dr Sarah Jane Moore, and Brian Landrigan, Manager of Media and Immersive Technologies to produce a suite of video resources that are being integrated into core first year courses in Term 3. The videos feature First Nations subject matter experts sharing their knowledges and perspectives on Indigenous Research Methodologies, Indigenous Cultural and Intellectual Property, and Elder-Based Learning. Through story, word, image, song, and land-based practices, the resources support staff and students to facilitate culturally informed and respectful discussions that deepen awareness of First Nations expertise, research, and practice. The presentation will be led by Dr Sarah Jane Moore, Dr Grant Stevens (Deputy Head of School, Art), and Brian Landrigan (Manager of Educational Media and Immersive Technologies), who will share progress and key learnings from this innovative Indigenous-led project.



**Dr Grant Stevens** is Deputy Head of School (Art) at UNSW Art & Design, where he leads programs in Fine Arts, Animation and Visual Effects, and Curating and Cultural Leadership. His teaching, research, and art practice focus on the relationships between contemporary art and emerging digital technologies.



**Dr Sarah Jane Moore** is an independent author, teacher, researcher, creative artist and singer song writer. She holds a PhD from the University of Sydney in Reconciliation through Music and Art where her inquiry formulated ways to engage in Reconciliation dialogues through music and visual art making. Her upcoming one woman show Hey kunanyi premieres at the Bondi Pavilion Theatre November 26.



**Brian Landrigan** is the Manager of Educational Media and Immersive Technologies at UNSW. He has worked as a teacher in a variety of settings and has been working in higher education for the past 16 years.