



NANYANG  
TECHNOLOGICAL  
UNIVERSITY  
SINGAPORE

# FROM GOOD TO GREAT 2021

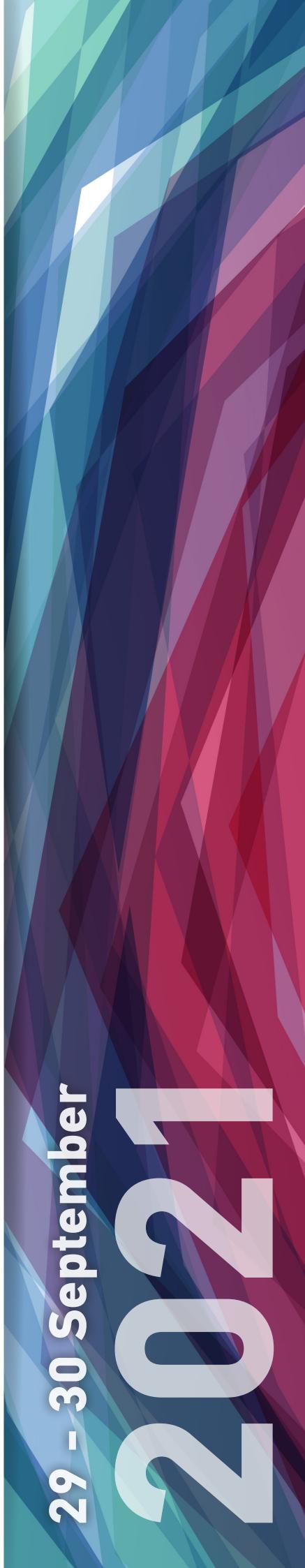
NTU Annual Learning and Teaching Conference

## Authentic Learning in Higher Education: Invariant Fundamentals in a Changing World

As our education landscape rapidly evolves, a key challenge we face is to provide enriching and authentic learning experiences to students in an environment of constant disruption, development and rapid changes.

At this conference, we aim to take on the discussion on how we can review the fundamentals of authentic learning approaches, blending it with innovation and strategies for teachers, learners and stakeholders alike.

29 - 30 September  
2021

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**Prof Ruth Bridgstock**  
Swinburne University of  
Technology, Australia

Ruth is Professor and Director of Employability at Swinburne University of Technology in Melbourne, Australia. She has more than 15 years' academic leadership experience focussing on institutional policy & strategy, curriculum design and student success, grounded in a significant research profile. Ruth's particular expertise is in fostering future-capability – that is, how students, educators and educational institutions learn and adapt to rapid and ongoing digital, social, and environmental changes in the 21st century. Ruth has received academic recognition as Principal Fellow of the Higher Education Academy, TEQSA Expert, Australian Awards for University Teaching award winner, and Australian National Senior Teaching Fellow for Graduate Employability 2.0. Her success in Australian competitive grants, industry and public sector funding has translated into more than 70 educational research outputs, with more than 3,500 citations, and significant educational policy impact. Her most recent book is *Higher Education and the Future of Graduate Employability: A Connectedness Learning Approach* (Edward Elgar).

Associate Professor Sonia Ferns is a Managing Partner of LearnWork Consulting, Adjunct Associate Professor at Curtin University and lecturer at Murdoch University. She was previously Science Academic Lead at Curtin University. She has led institutional strategic projects on curriculum renewal focussing on quality enhancement and establishing an institutional quality framework for Work-Integrated Learning (WIL). In 2020 she led renewal of the Mining Engineering degree in partnership with industry and the Minerals Council of Australia. Designing and delivering interdisciplinary WIL subjects to Science Technology Engineering and Maths (STEM) students has been a key part of Sonia's role in recent years. She is Immediate Past President of the Australian Collaborative Education Network. Sonia has led or been a member of the lead team for 12 national projects on WIL. She has published extensively on industry engagement and WIL and is an Associate Editor for the International Journal of WIL. She works collaboratively with an international consortium of WIL researchers.



**Assoc Prof Sonia Ferns**  
Curtin University and Murdoch  
University, Australia

## But Is Authentic Enough? Rethinking Higher Education Pedagogy for Future-Readiness

This presentation takes as its starting point that authentic learning is an important pedagogic foundation in preparing learners for life and work. As part of a broader pedagogic strategy, learning that involves real-world contexts, problems, explorations, and connections beyond the classroom is powerful because it leads to increased learner motivation, depth of learning, and the development of valued capabilities. However, authentic learning is not always future-ready learning. In this presentation Ruth will draw upon research into student, graduate and professional learning approaches to explore which kinds of authentic learning experiences are best to prepare learners for the future of life and work, in the broader context of ongoing disruptive change. Ruth will characterise current curricular practice in terms of the extent of future-ready authenticity, and survey some of the challenges for educators working to implement these strategies. She will share insights into specific aspects of authentic pedagogies that foster the development of future-ready (vs legacy) capabilities, including some that can easily be built into the design of courses and individual sessions.

## Learning for Life: Re-imagining Curriculum and Assessment for the Future

Rapidly evolving social, economic and political dynamics are impacting on learner characteristics and the preferred learning of current and future students. Employability capabilities, career transition, interdisciplinary problem-solving, and professional networking are increasingly important attributes in a globally connected marketplace. Preparing for an uncertain future characterised by evolving digital technologies and changing workplace dynamics requires learning experiences that equip students with the resilience and lifelong learning skills pivotal to wellbeing and success. A holistic curriculum premised on the student as partner in their learning journey, cooperative industry/community partnerships, and globally relevant learning experiences is imperative. Embedding Work-Integrated Learning (WIL) in curriculum accommodates diversity, promotes student agency, enhances student outcomes, and facilitates progressive development of skills and knowledge. This session highlights the benefits of learning experiences that enable a life-long approach to learning and empowers the learner. This will lead to discussions on the development and enactment of curriculum and assessment design. Identifying barriers and enablers for implementing a WIL curriculum will prompt a solutions-based approach. The role of partnerships in shaping student learning will be a key focus of the presentation.



**Dr Ho Shen Yong**  
Nanyang Technological University

Dr Ho Shen Yong is the Executive Director of the Institute of Pedagogical Innovation, Research and Excellence (InsPIRE). He is also concurrently serving as the Associate Dean (Academic) at College of Science. Dr Ho joined Nanyang Technological University in 2011 as a Physics lecturer. Prior to that, he was teaching at Hwa Chong Junior College from 1998 to 2003. He then pursued his graduate studies in Physics at University of Toronto from 2004 to 2009. Subsequently, Dr Ho did his postdoctoral research at University of Illinois at Urbana-Champaign and Center for Quantum Technologies in NUS from 2009 to 2011. As the lecturer for the freshman engineering Physics course, he has been actively developing learning activities for students to help them enhance their thinking skills and appreciate connections between textbook knowledge and applications in the real world. Dr Ho has also helped set up the Making and Tinkering course in 2014 where students are free to design and construct almost any technological prototype within a semester. To date, the course has more than 100 student projects. Dr Ho was given a few teaching awards, including the Nanyang Education Award (University, Gold) in 2018.



**Dr Wilson Wen Bin Goh**  
Nanyang Technological University

Wilson Wen Bin Goh is Assistant Professor of Biomedical Informatics in Lee Kong Chian SOM and the School of Biological Sciences. He is also Assistant Chair (Graduate Studies) and Director of the Biomedical Data Science Graduate Programme. His lab is the Bio-Data Science and Education (BDSE) laboratory where the key interests are in 1) developing feature engineering and machine learning methods customised towards biomedical applications and in 2) meeting future education needs of the new digital landscape (the idea of co-evolution with AI). The latter interest includes how to groom workplace ready data scientists. Wilson is a strong believer in experiential learning, which provides authenticity and practical opportunity. Hence, Wilson has established co-training partnerships with both public and private institutions, including SG Innovates and Quantum Black/McKinsey and Co. These partnerships are harnessed into practical courses utilizing NTU's own experiential learning pedagogy (the Deeper Experiential Engagement Project; DEEP).

## Creating More Authentic Learning Experiences for our Students

I will share the mission of the newly set up Institute of Pedagogical Innovation, Research and Excellence (InsPIRE) and the key strategies to enhance teaching and learning in NTU. An area of focus is to create more authentic learning experiences for NTU students. This talk will highlight the key characteristics of authentic learning and the traits that we want to develop in students. Very often, the type of class activities, assignments and assessments will drive student learning behaviour. We will explore how to create opportunities for students to use their hands and minds on tasks that are meaningful and relevant. Students who have benefited from authentic learning will have an in-depth knowledge of content, developed higher order thinking skills and will also appreciate the connection of what they have learnt to the real world.

## Teaching with McKinsey and Co: A reflection on Multi-party Industry Engagements for Meaningful and Authentic Data Science Learning

The experiential data science course, BS6206, is a unique module co-developed with direct inputs and involvements with management consultancy (McKinsey and Co) and data science companies (Quantum Black). These involvements are in turn, harnessed and structured using NTU's experiential learning pedagogy, the Deeper Experiential Engagement Project (DEEP). While overall successful, with McKinsey intending to continue, running BS6206 also turned out to be quite a learning experience for the course coordinators (namely myself and the company managers). I would like to share my experience of how this course came to be, how we co-designed it, interesting highlights from its execution, and finally, a reflection on our mistakes and how we will continue to deepen this industry collaboration.



Assoc Prof David Ng  
National Institute of Education

Associate Professor David Ng is Associate Dean, Academic Quality at the National Institute of Education (NIE), Nanyang Technological University Singapore. He provides overall leadership, management and improvement in academic, student, and programs quality. He also leads in the planning, review and effective implementation of the Strategic Planning Academic Quality's initiatives, research and evaluation studies that guide future strategic directions of the institute.



Dr Angela Frattarola  
Nanyang Technological University

Dr Frattarola is the Director of the Language and Communication Centre. Over the past twenty years, she has taught first-year writing courses, as well as classes on modernism and twentieth-century literature. Her book, *Modernist Soundscapes: Auditory Technology and the Novel* (University Press of Florida 2018), explores how early auditory technologies such as the phonograph, headphones, talkie, and tape recorder, subtly changed the public's sense of auditory perception, and how those changes are reflected in and shaped the modernist novel. Aside from her publications in modernism and sound studies, which can be found in journals such as *Woolf Studies Annual*, *Mosaic*, *Modern Drama*, *Journal of Modern Literature*, *Studies in the Novel*, and *Genre*, Dr. Frattarola studies the pedagogy behind best teaching practices for helping students become effective readers and writers.

## Future-ready Graduates: Learning, Lifework, and Living

The definition of a successful education system is: "...to develop future-ready graduates who will continue to learn beyond graduation, take on future lifework, and thrive in a changing society and environment." This definition of future-ready is categorised into three aspects:

(1) Future-ready for learning (How do future-ready graduates co-create learning opportunities and actively participate in life-long learning?)

A learner is defined as "learning about something" (Collins dictionary), hence it is not tied to a fixed period of study and does not stop upon graduation. Future-ready learners embrace and practice life-long, life-wide, and life-deep learning.

(2) Future-ready for lifework (How do future-ready graduates shape and co-create the future of work?)

Lifework is defined as the entire or principal work or activity of a person's lifetime. One of the key competencies is value creation (beyond value-added). Value creation introduces newness of products, services, and processes that expand the scope for human purposes.

(3) Future-ready for living (How do graduates contribute to a cohesive society and co-create sustainable utilization of earth's resources?)

Future-ready for living includes citizenry. This is the heartware that individuals must develop for future-ready living in Singapore. As Singapore progresses into the future, greater consumption of energy (electricity, electromagnetic spectrum, sunlight, etc.), and matter (food, water, physical infrastructures etc.) will occur. The second aspect of living is developing individuals who are future-ready to co-create sustainable utilization of earth's resources.

## Writing As a Tool for Authentic Learning

Studies suggest that the process of writing does not just aid students with remembering course material, but can, more importantly, allow students to conceive of new ideas. As writers find words and sentence structures to convey their thoughts, this process of externalization can result in new understandings and opportunities for authentic learning. This talk will review some of the research on writing as a tool for thinking and explore different techniques and activities that can engage students in writing across the disciplines.

Sep 29, Wednesday DAY 1 (09:00 – 12:40)	
Time	Programme
08:30	Registration and Login
09:00	<u>Conference Welcome</u> <b>Dr Preman Rajalingam</b>
09:10	<u>Guest-of-Honour Speech</u> Provost / Deputy Provost (Education)
09:25	<u>Keynote 1</u> <b>Learning for Life: Re-imagining curriculum and assessment for the future</b>  <b>Assoc Prof Sonia Ferns</b> Associate Professor, Curtin University Managing Partner, LearnWork Consulting
10:25	Break
10:45	<u>NTU/NIE Faculty Sharing 1</u> <b>Creating More Authentic Learning Experiences for our Students</b>  <b>Dr Ho Shen Yong</b> Executive Director Institute of Pedagogical Innovation, Research and Excellence (InsPIRE) Nanyang Technological University
11:30	<u>NTU/NIE Faculty Sharing 2</u> <b>Teaching with McKinsey and Co: A reflection on multi-party industry engagement for meaningful and authentic data science learning</b>  <b>Asst Prof Wilson Goh</b> Assistant Professor of Biomedical Informatics Lee Kong Chian School of Medicine
12:15	<u>John Cheung Social Media Award Presentation</u>
12:30	<b>Day 1 Closing</b> Announcements and wrap-up
12:40	<b>End of Day 1</b>
14:00 – 16:00	<b>Close Door HERDSA Event</b>

30 Sep, Thursday DAY 2 (09:00 – 12:40)	
Time	Programme
08:30	Registration and Login
09:00	<u>Announcements</u> <b>Dr Preman Rajalingam</b>
09:10	<u>Keynote 2</u> <b>But Is Authentic Enough? Rethinking higher Education Pedagogy for Future-Readiness</b>  <b>Professor Ruth Bridgstock</b> Director of Employability Swinburne University of Technology
10:10	Break
10:30	<u>NTU/NIE Faculty Sharing 3</u> <b>Future-ready Graduates: Learning, Lifework and Living</b>  <b>Assoc Prof David Ng</b> Associate Dean, Academic Quality, Director's Office National Institute of Education
11:15	<u>NTU/NIE Faculty Sharing 4</u> <b>Writing As a Tool for Authentic Learning</b>  <b>Dr Angela Frattarola</b> Director of Language and Communication Centre Nanyang Technological University
12:00	<u>Panel Discussion &amp; Wrap-up</u> Facilitated by Dr Preman Rajalingam
12:30	<b>Conference Closing</b>
12:40	<b>End of Day 2</b>

4 Oct , Monday	
Workshops	
Date/Time	Programme
4 Oct 2021 09:00 – 11:00	<b>Workshop 1</b> <b>Authenticity Plus: Practical Programme, Course, and Sessions Design for Future-Readiness</b>  <b>Facilitator:</b> Prof Ruth Bridgstock

## WORKSHOP 1

Authenticity Plus: Practical Programme, Course, and Session Design for Future-Readiness

Facilitator: Professor Ruth Bridgstock

### Overview of Workshop

In this workshop, participants will explore an authenticity-plus approach to pedagogy in their own teaching contexts. Using toolkit resources and a collaborative design-thinking based approach, educators will engage in a reflective self-characterisation of their own programme, course, or session, to identify areas of existing strength and future opportunities for development of future-ready authentic pedagogy. This self-characterisation forms the basis for a structured ideation, refinement, and action planning process. Educators will complete the workshop having developed a plan to foster the future-readiness of their students, and enhance the authenticity of their teaching.

Participants will:

- Reflect upon and characterise a chosen element of their teaching practice (at programme, course, learning activity, assessment or session level), in terms of Authenticity Plus dimensions.
- Identify key areas of strength and those for augmentation using the Authenticity Plus Future Readiness curriculum framework.
- Design and develop an action plan for the enhancement of future-ready authenticity in their teaching practices.
- Share with other educators their current practices and ideas for enhancement of future-ready authenticity in their teaching practices.
- Provide feedback and developmental support to colleagues around authentic future-ready pedagogic practices.

4 Oct , Monday	
Workshops	
Date/Time	Programme
4 Oct 2021 14:00 – 16:00	<b>Workshop 2</b> <b>Evidencing student capabilities: Designing real-world curriculum and assessment</b>  <b>Facilitator:</b> Assoc Prof Sonia Ferns

## WORKSHOP 2

Evidencing student capabilities: Designing real-world curriculum and assessment

Associate Professor Sonia Ferns

### Overview of Workshop

Rapid changes in technology, heightened global mobility and advances in digital communications are impacting on workplaces. Capabilities required for success in an unpredictable and volatile professional setting are shifting to an increased focus on innovation, resilience and entrepreneurship, thereby challenging traditional approaches to university education. Importantly, industry engagement builds a sense of professional identity— a career purpose and intent.

Workshop participants will explore the influence of environmental factors on future students' learning styles and the importance of embedding Work-Integrated Learning (WIL) in curriculum. Activities will explore a scaffolded curriculum design which progressively builds student proficiency and incorporates incremental development in autonomy, responsibility, diversity, consequence, contribution, and active reflection for students. Designing assessment tasks where the intellectual capacity of students is evidenced by practice-based experiences will be a key focus. The challenges of measuring the nuances of unpredictable, context-dependent outcomes are explored and the benefits of innovative assessment models that enable a creative way for students to provide evidence of employability capabilities highlighted. Strategies will be identified that optimise outcomes for stakeholders and build student agency.

Participants will:

- Identify influences on learning styles of future students.
- Determine features of curriculum design that caters to emerging learning styles.
- Design curriculum and assessment that meet the future learning needs of students.
- Consider partnership models and implications for curriculum co-design.
- Identify solutions to overcoming barriers to designing real-world curriculum.
- Share ideas and strategies for engaging staff in collaborative teaching styles.

**Organised by:**

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