

L&T:22

Showcase – Session 2C

Wednesday 28 September



Showcase – Session 2C

Dr Juan Yao

Senior Lecturer, Discipline of Finance, The University of Sydney Business School



Showcase 1

**Engaging Students in Complex and
Multidisciplinary Content: the
BUSS5220 Meta Narrative Video Series**

— Anna Young-Ferris and Max Baker



L&T:22

Learning and Teaching Forum

Engaging students in complex and
multi-disciplinary content:
The BUSS5220 Meta Narrative
Video Series

28 September 2022

Presented by

Dr Anna Young-Ferris

Dr Max Baker (sends apologies)



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We acknowledge the tradition of custodianship and law of the
Country on which the University of Sydney campuses stand.
We pay our respects to those who have cared and continue to
care for Country.



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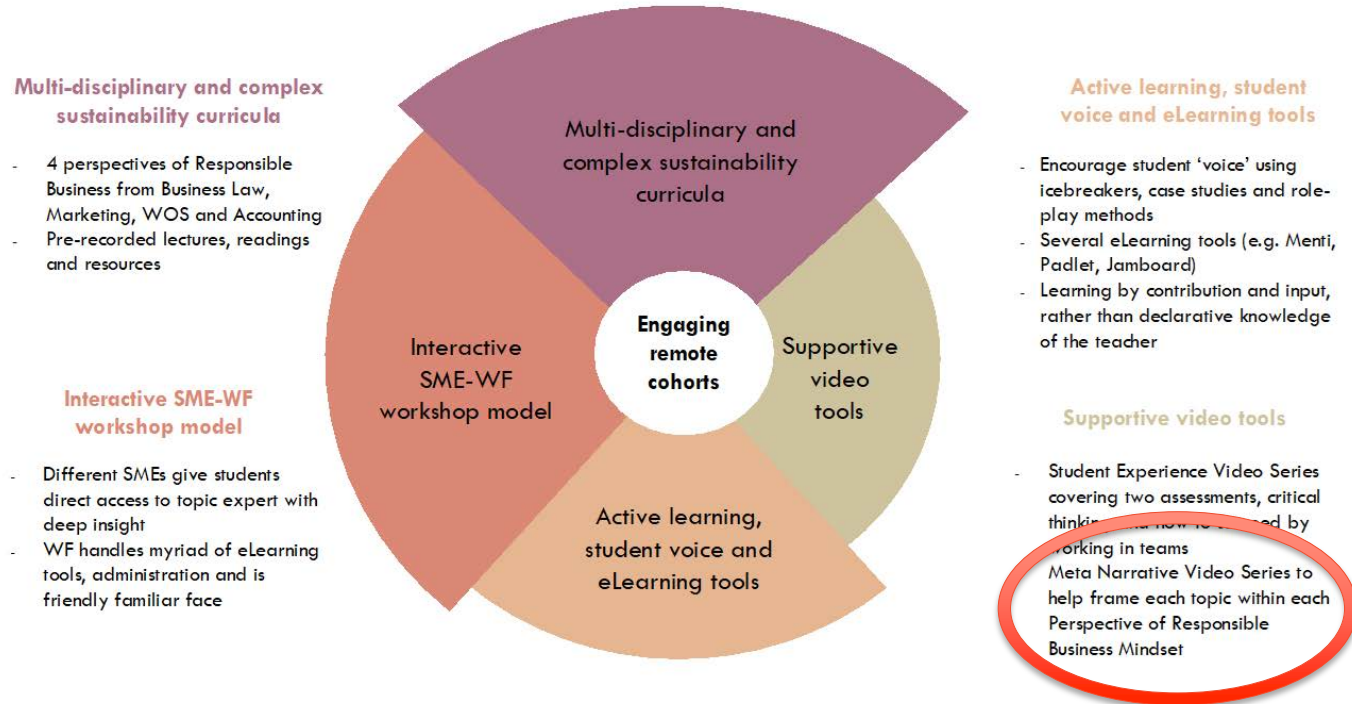
The scale and complexity of BUSS5220

- 1510-2256 students and 43-57 staff each semester in the context of the global pandemic cannot be understated
- Two key pedagogical challenges emerge:
 - 1) Engaging large, remote and non-native English-speaking cohorts
 - 2) Student learning of complex multidisciplinary sustainability-focused pre-recorded lecture content



How we responded...

Figure 1: How to engage remote cohorts at scale in multi-disciplinary and complex sustainability curricula

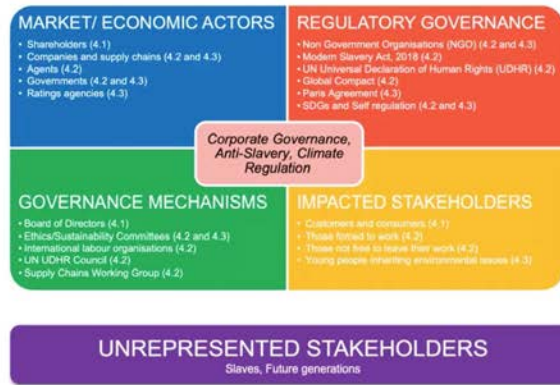


The BUSS5220 Meta Narrative Video Series

- To help frame each weekly lecture topic within each disciplinary Perspective of Responsible Business Mindset.
- Videos communicate how the same stakeholders are impacted by the different topics within each disciplinary Perspective.

Perspective 1: Business Regulation (the Regulation perspective)

Topic 4: Corporate Governance, Anti-Slavery, Climate Regulation



The University of Sydney

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What did our students say?

The videos effectiveness in engaging students in lecture content is indicated in:

“Overview is brilliant, video by Anna and Max is very useful to get a general idea before starting the module.”

~USS, S1, 2022

“Yes, Meta-Narrative video motivates me to watch the lecture recordings that follow.”

~65% respondents (n=623) in S1, 2022 “Help us, help you” local unit survey

Question?



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Showcase 2

Parallel Projects: a Model for Low-risk, High-impact Interdisciplinary Projects

— Steven Hitchcock



Parallel Projects

Learning and Teaching Forum 2022

Presented by

Dr Steven Hitchcock, Lecturer, WIL

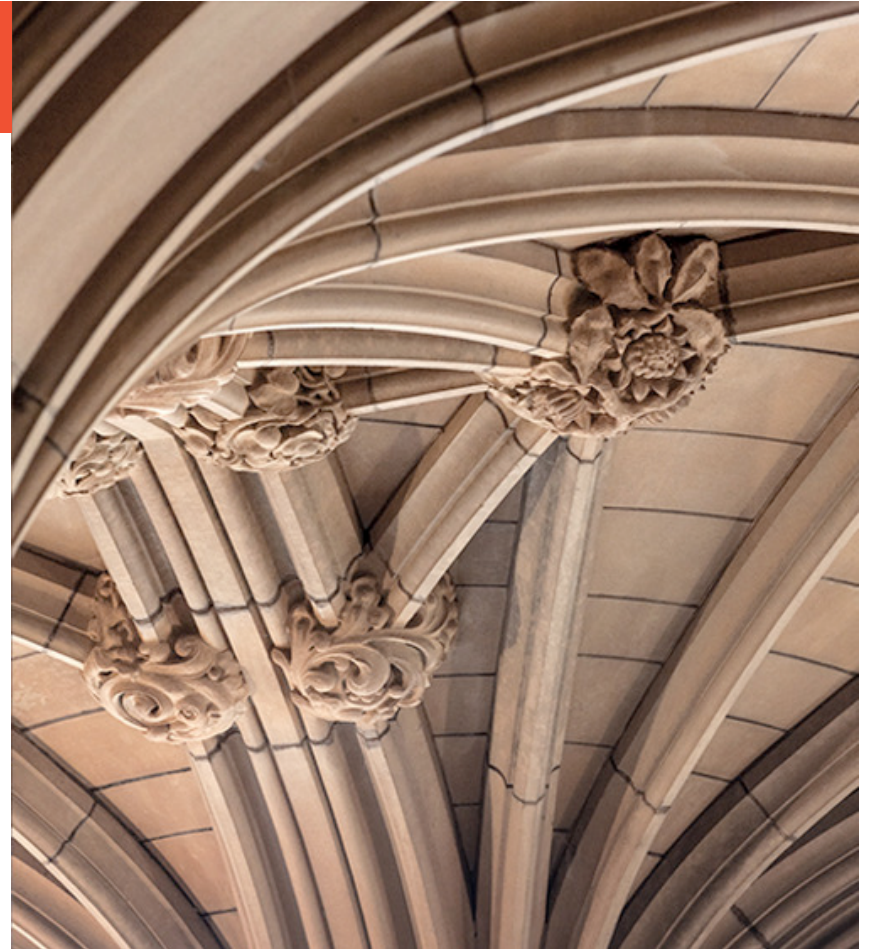


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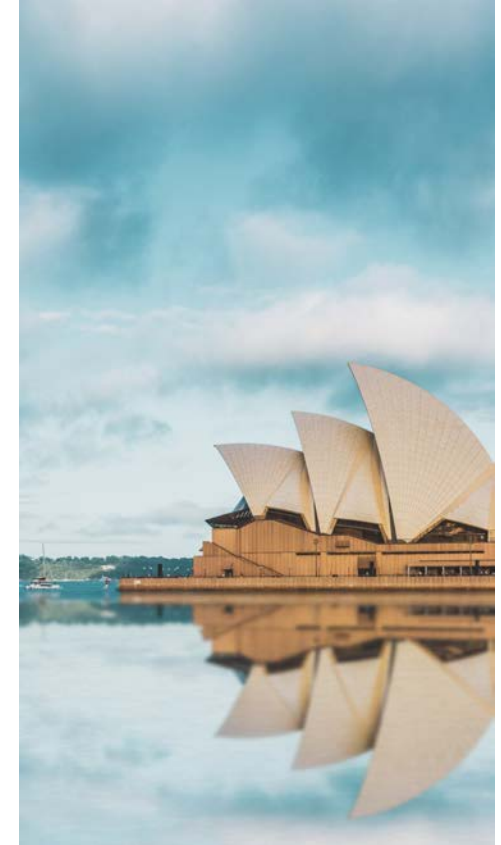
Agenda

- Background
- The 'idea'
- Operating Model
- Challenges/Key Learnings
- Discussion



Introductions and acknowledgements

- **Dr Steven Hitchcock** - Lecturer
 - Work-Integrated Learning
- **Greg Sutherland** - Associate Professor, Pathology
- **Damien Higgins** - Associate Professor, Pathobiology and Wildlife Health
- **Jan Slapeta** - Professor of Veterinary and Molecular Parasitology



Background

Background

1. The WIL Hub's project-based consulting units known as Practicums were redesigned in 2020
 - Have been growing steadily since
 - Live projects, real people, real problems
2. Medical and Vet school approached us in 2020 for assistance in re-working their project-based units.
 - Experience running project-based work
 - Large units
3. Enthusiasm from senior leadership to drive inter-School collaboration.



What about ICPUs?

- ICPUs are an important, and innovative model.
- However
 - Very high administrative workload
 - Expensive
 - Focus/pressure on the 'interdisciplinary effectiveness'
 - High-level policy challenges
 - Not really something coordinators can 'access'

The solution?

The idea of 'Parallel Projects'

1. Each school runs their own separate project unit.
 - Separate codes, cohorts, assessments.
 - Students allocated to groups in own unit
2. But, both units share a client and industry project.
 - Includes elements from each discipline.
3. Each group in each unit, will have a sister group in the other unit.
 - Work together on the project, but on separate parts via collaborative classes
4. Each unit has its own assessment schedule, students' grades can't be impacted by sister group
5. "Parallel projects"



Operating model

Pilot in Sem 2, 2022

- Three units running in parallel
- Same client, and same brief
 - BUSS1321 (30 enrolments) is taught by myself.
 - IMPA3888 (approx. 50-100 enrolments) is taught by Associate Professor Greg Sutherland from the School of Medical Sciences.
 - AVBS388 (approx. 100-200 enrolments) is co-taught by Associate Professors Damien Higgins and Professor Jan Slapeta in the school of Veterinary Science.

Client Update



Project Update (To be confirmed)

Japanese encephalitis virus has been detected in Australia

Protect yourself by taking some simple steps to avoid being bitten by mosquitos:



Cover up



Use insect repellent



Use a screen or net

Seek urgent health advice if you think you may be infected with Japanese encephalitis virus

Unit foci

- BUSS1321: Understanding the business of mosquito management, including cost-benefit analysis of prevention measures, and producing sustainable management solutions for DPI and/or specific piggeries.
- AVBS3888: Decreasing the spread of the disease, understanding the viral load in the environment, likely with a specific focus on mosquito vectors.
- IMPA3888: Understanding the human health side of things, including protection of industry workers and scientists.

Challenges/Key Learnings

1. Pedagogical Differences

- All teachers have different pedagogical principles
- Working across fields, and across schools, the gaps become larger
- Fundamental questions around tolerances of uncertainty become attenuated



2. Practical alignment

	A	B	C	D	E	F	G	H	I
1		Topic	Topic	Topic	Topic	Topic			Ass
2	1	Lecture 1h	Introduction and overview		Welcome & Unit overview, principles of engagement activity (first 50 min)	Lecture 1h	Intro		
3		Tute 2h	Welcome & Unit overview, principles of engagement activity (first 50 min) 7 Intro to Project work: group charter, co-create peer evaluation: Health and Society and why does an interdisciplinary approach matter?	Tute 3h	Welcome & Unit overview, principles of engagement activity (first 50 min) 7 Intro to Project work: group charter, co-create peer evaluation: Health and Society and why does an interdisciplinary approach matter?	Tute 2h	7 Intro to Project work: group charter, co-create peer evaluation: Health and Society and why does an interdisciplinary approach matter?	Discover	
4		Lecture 1h	Briefing	Prac 3h	Biomedical science (Immunology and Pathology) - Who are we and what do we do well?	Prac 3h	Biomedical science (Immunology and Pathology) - Who are we and what do we do well?		
5					Lecture 2h		Critical review of IS		
6		Tute 2h	Understanding the brief and initial insights	Tute 3h	Panel Question: Human's best friends or dangerous pathogen reservoirs for zoonotic diseases? Academics panel	Tute 2h	Panel Question: Human's best friends or dangerous pathogen reservoirs for zoonotic diseases? Academics panel		
7				Prac 3h	Framing good questions: Focusing on IK - what are the key questions/problems?	Prac 3h	Framing good questions: Focusing on IK - what are the key questions/problems?		
8	3	Lecture 1h	Data collection and research fundamentals		An Introduction to the challenges of IK: Brainstorming the subject role of teams with teams (JAVES/MAPA/BUSS)	Lecture 1h	Assay design and application - PCR, incl Q/Q validation		
9		Tute 2h	Industry panel	Tute 3h	Data and ethics	Tute 2h	An Introduction to the challenges of IK: Brainstorming the subject role of teams with teams (JAVES/MAPA/BUSS)	Define	
10				Prac 3h	Independent IS searching	Prac 3h	Independent IS searching		
11	4	Lecture 1h	Customer journey mapping and personas		Problem Solving in Disease Investigation, And principles of engagement activity (first 50 min)	Lecture 1h	Assay design and application - Immune based tests incl Q/Q validation		
12		Tute 2h	Storyboarding and sketching	Tute 3h	What makes 'good' evidence? (1hr)	Tute 2h	Problem Solving in Disease Investigation, And principles of engagement activity (first 50 min)		
13				Prac 3h	PRAC: ELISA optimization	Prac 3h	PRAC: ELISA optimization		
14	5	Lecture 1h	Planning, modelling, and mapping		Panel Question: Lessons from COVID-19 - Learning for the future from differential approaches to and outcomes from dealing with a pandemic	Lecture 1h	Review ELISA data: optimisation and technical validation		
15		Tute 2h	Modelling	Tute 3h	Commercial 1 - Ideation	Tute 2h	Panel Question: Lessons from COVID-19 - Learning for the future from differential approaches to and outcomes from dealing with a pandemic		
16				Prac 3h	Define experiments in groups - drop ins/ breakouts	Prac 3h	Define experiments in groups - drop ins/ breakouts		
17		Lecture 1h	Communicating ideas and consulting		Using interdisciplinary research to influence policy and Co-Design	Lecture 1h	Define approach - Methods - classical micro/parasitology: Experimental design, standards and controls. Framing good questions		
18		Tute 2h	Something to re-inforce and support (interdisciplinary: Interdisciplinary B and D case study?)	Tute 3h	The Health Gap - An Australian Priority	Tute 2h	Using interdisciplinary research to influence policy and Co-Design	Develop	
19				Prac 3h	Prac 3h - proof of concept	Prac 3h	Prac 3h - proof of concept		
20	7	Lecture 1h	Mid-semester Q&A		What are the opportunities and risks of genetic selection programs and gene editing to prevent or reduce disease?	Lecture 2h	Lab groups present and revise approach		
21		Tute 2h	Swallowing frogs and making decisions	Tute 3h	Communicating interdisciplinary ideas for diverse non-technical audiences	Tute 2h	Lab groups present and revise approach		
22				Prac 3h	Prac 3h - proof of concept	Prac 3h	Prac 3h - proof of concept		
23	8	Lecture 1h	Prototyping		What is the interrelationship between climate change and disease?	Lecture 1h	Lab groups present and revise approach		
24		Tute 2h	Low-fidelity prototypes and peer review	Tute 3h	What can we learn from what historical examples show us about the way government and different areas of society react to and are impacted by epidemics/disease?	Tute 2h	Lab groups present and revise approach		
25				Prac 3h	Prac 3h - proof of concept	Prac 3h	Prac 3h - proof of concept		
26									
27	9	Lecture 1h	Refining, revising, and improvising		Commercial 2 - Opportunities and threats for taking products to market	Lecture 2h	Operationalise - Q&A from Q&A to client focus to sustainability		
28		Tute 2h		Tute 3h	Will Silicon Valley save Humanity?	Tute 2h	Operationalise - Status of proof of concept (where did we get to) and next steps	Define	
29				Prac 3h	Prac 3h - proof of concept	Prac 3h	Something bringing projects together		
30	10	Lecture 1h	Presentation masterclass		Shark tank 2 (internal) - feedback on potential solutions	Lecture 2h	Something bringing projects together		
31		Tute 2h	Presentation skills	Tute 3h	Panel Question: What is our ethical obligation as scientists to drive social change to prevent disease?	Tute 2h	Something bringing projects together		
32				Prac 3h	Prac 3h - proof of concept	Prac 3h	Operationalise - Q&A - See Sp Prac 3h		
33	11	Lecture 1h	Leading up to launch and launching		Reflection and final assignment workshop: drive home integration of disciplines	Lecture 2h	Reflection and final assignment workshop: drive home integration of disciplines		
34		Tute 2h	Final assignment workshop	Tute 3h	Considering ethics and ethical thinking in interdisciplinary research	Tute 2h	Drop-ins		
35				Prac 3h	Interdisciplinary case studies	Prac 3h	Drop-ins		
36		Lecture 1h	Something business - led?	Tute 3h	Shark tank 2 (external) - Final presentations	Lecture 2h	Interdisciplinary case studies		
37		Tute 2h		Prac 3h	Will Silicon Valley save Humanity?	Tute 2h	Something business - led?		
38						Prac 3h	Drop-ins		
39	13	Lecture 1h	Summary and review			Lecture 2h	Interdisciplinary case studies		
40									
41									
42									
43									
44									

3. Student interest level

- Each group in each unit was allocated a sister group
- They see/consult with each other in the flagship events
- Students seem to enjoy it but aren't pursuing it
- Without formalized requirements, engagement seems limited

4. Risk mitigation is essential

- Things have gone wrong in each unit
 - Each cohort is isolated from each other
- Units remain separate
 - Very adaptable
 - Not marrying one another
 - Separation is easy
- No need for
 - Outline changes
 - Policy changes



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Questions/Discussion



End Slide



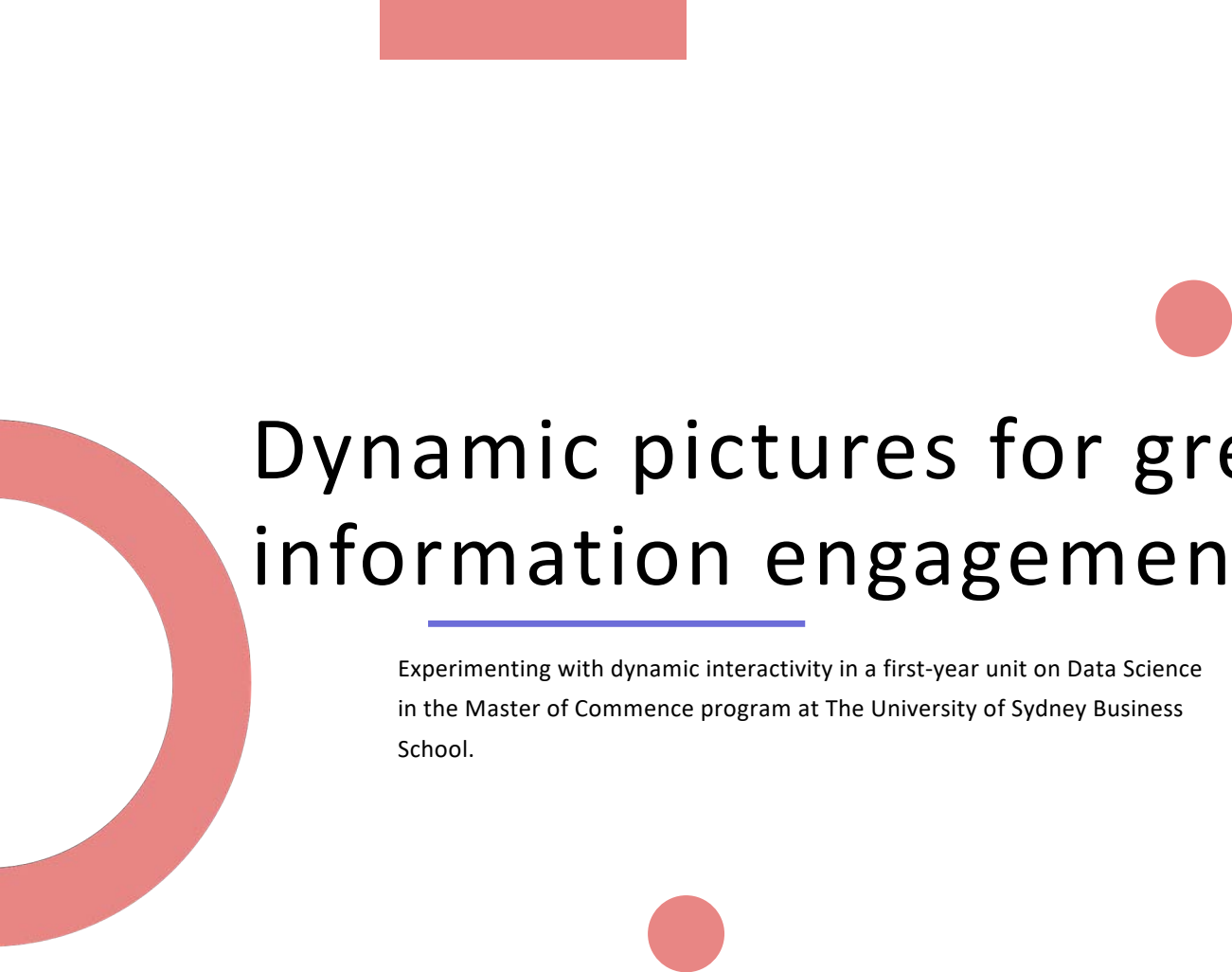
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Showcase 3

Dynamic Pictures for Greater Information Engagement

— Stephen Tierney, Enosh Yeboah and Stephanie Wilson





Dynamic pictures for greater information engagement

Experimenting with dynamic interactivity in a first-year unit on Data Science
in the Master of Commerce program at The University of Sydney Business
School.



Acknowledgement of Country

We would like to acknowledge the Gadigal people of the Eora Nation, the traditional custodians of this land and pay our respects to the Elders both past and present.

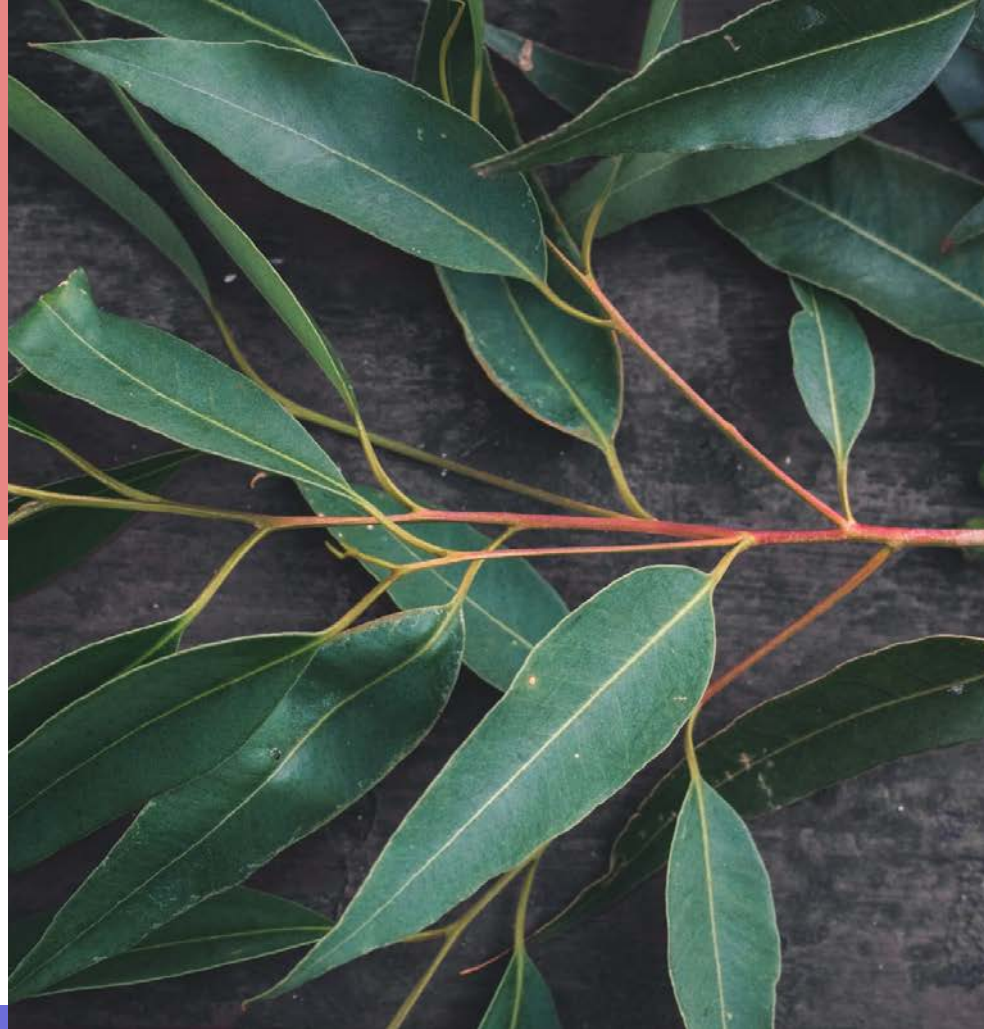


Photo by April Pethybridge on Unsplash

About the presenters



Dr Stephen Tierney

Stephen is a lecturer in Business Analytics at The University Sydney Business School. His research interests include machine learning, computer vision, image processing, data visualisation and recommendation systems.



Dr Stephanie Wilson

Stephanie is a Senior Lecturer and Deputy Director (CLaS) with the Business Co-design team at Sydney University and Senior Fellow of the Higher Education Academy (SFHEA). She enjoys working with others to explore new approaches to learning and teaching inspired by design practice and the arts.

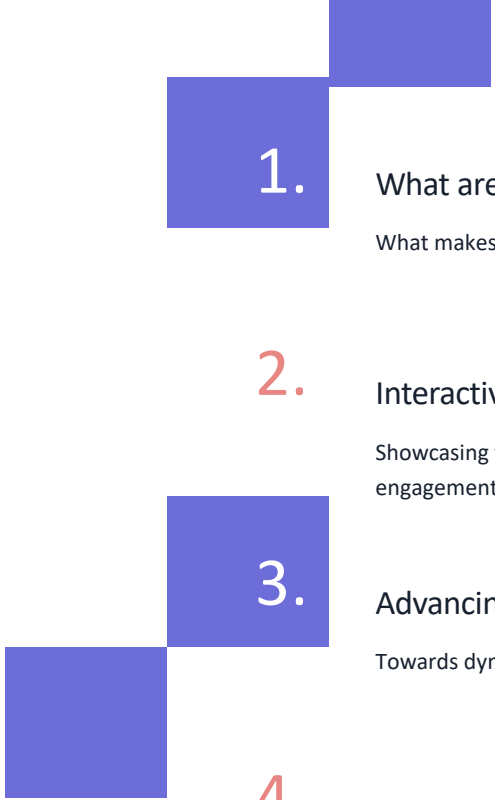


Enosh Yeboah

Enosh is an Assistant Learning Designer at University of Sydney passionate education sector professional with 10-years' experience in diverse roles (including teaching, education support and, most recently, learning design), all underpinned by dedication to student engagement, inclusion, accessibility, and understanding.



Table of Contents



1.

What are dynamic pictures?

What makes a dynamic picture dynamic?

2.

Interactivity

Showcasing two tools to support student interaction and engagement with content.

3.

Advancing interactivity

Towards dynamic pictures in BUSS6002. What did we do?

4.

Next steps

Expanding the use of dynamic pictures in the future.



What are dynamic pictures?

Dynamic pictures are one way of helping students understand a system, and how the parameters of that system, when manipulated, impact on the system as a whole.

Dynamic pictures are “ideal for visual explanations, because the parameters can represent information to be conveyed. As the information changes, so does the picture” (Victor, 2011).

While some of our earlier tools provided ways for students to interact with content, more recent designs have started to move towards supporting more dynamic representations of thought.

Interactivity

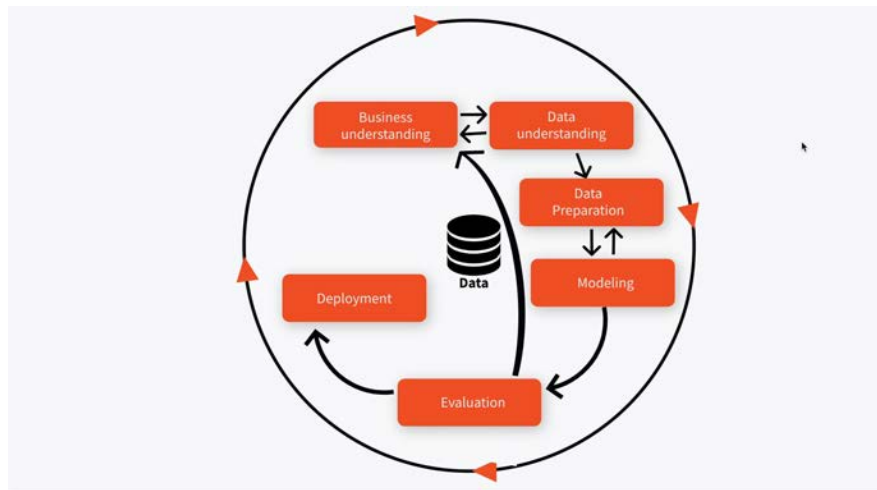
Genial.ly

To make online learning information more engaging, we explore some possible solutions that could make static content more intuitive, accessible, and interactive. In our case, Genial.ly and H5P were perfect tools.

A Genial.ly presentation is more engaging with animation and visual effects.

In the Knowledge Discovery Process Models topic, we created an interactive CRISP-DM diagram using genial.ly's smart blocks.

The diagram was transformed from a static image and text description into a dynamic, engaging diagram that relieved learners of cognitive load as they processed and connected each stage and process, as well as learned what each stage represented. Using Genial.ly, the CRISP-DM diagrams became much easier to understand than a long text description.



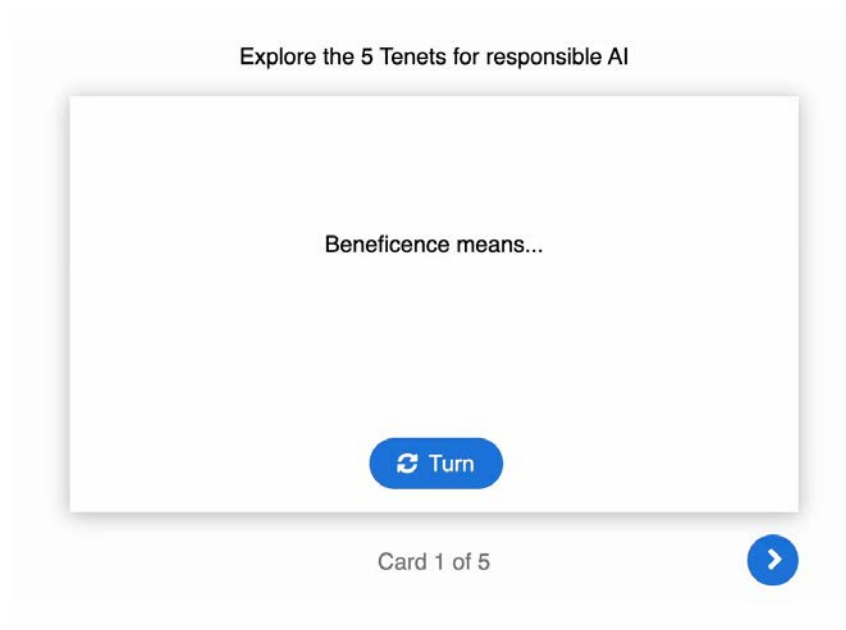
Display of a Genial.ly diagram

Interactivity

H5P

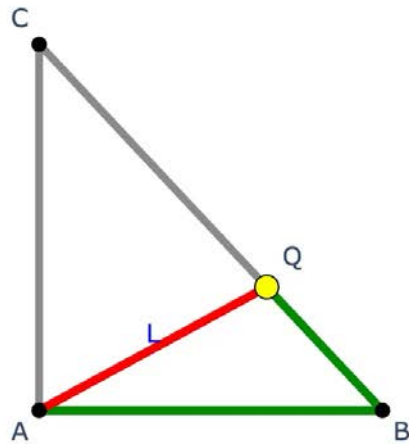
H5P is another tool we used in our unit design to create interactive videos, presentations, and games. As an example, text-based content on the 5 tenants of a responsible AI was chunked and turned into interactive activities. This key concept was reinforced with gamification using dialog cards (an H5P content type). Students were given prompts to guess on one side of the card, and then checked their understanding on the other.

Using genial.ly and H5P in our development clearly improved content engagement, and we had positive feedback from students about their effectiveness. Keeping exploring interactivity, we adapted to a more dynamic way of displaying information, especially statistical representation.

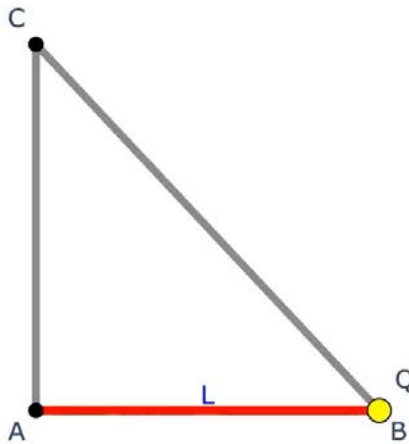


Display of H5P dialog card

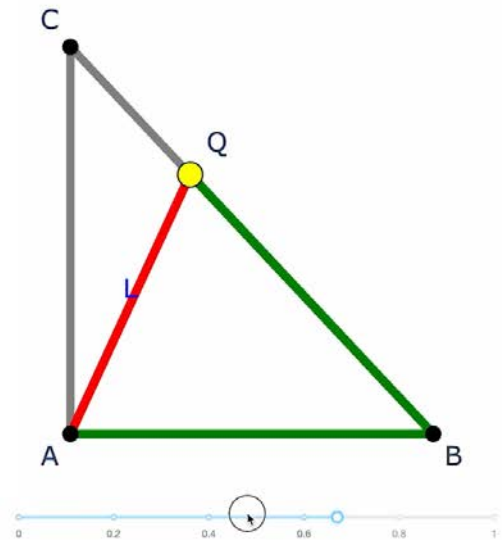
Advancing interactivity



Static



Dynamic



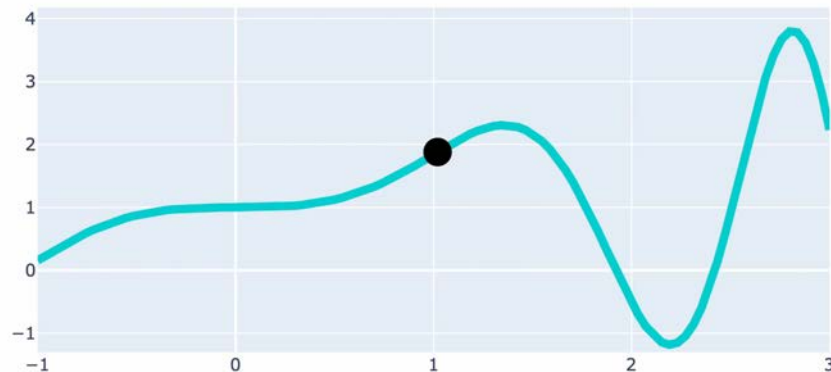
Interactive Dynamic

Advancing interactivity

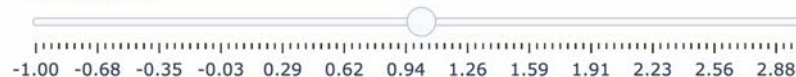
Plotly

- Visualisation library
- Design visualisations ourselves
- Supports varying levels of interactivity
- Deployed in S1 2022 for BUSS6002

Likelihood: 1.8802

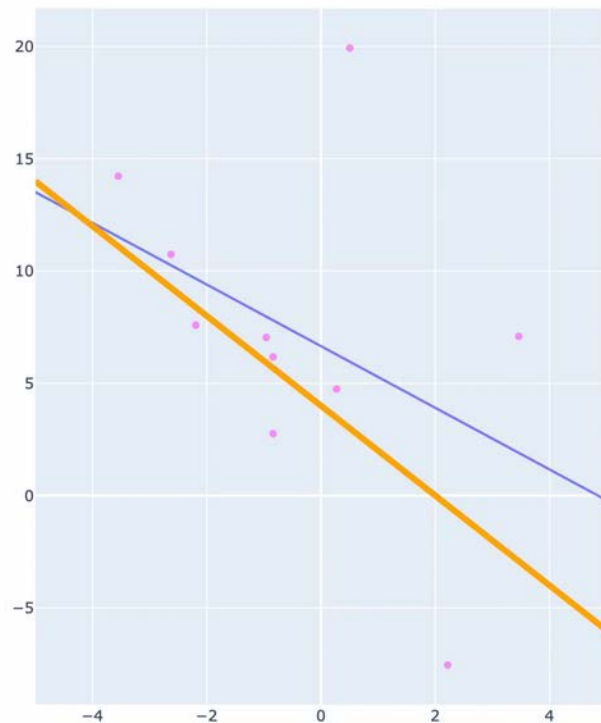
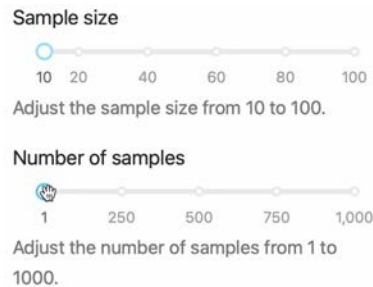


Probability: 1.02



Pursuing further: interactivity

- Our current approach requires that the visualisations are pre-computed.
- This limit could be removed in future.
- This demo uses plot.ly Dash, which is a Dashboarding framework.



Feedback

- "a graph like this really helps – it adds value;"
- "it's a complex subject, optimisation, maximum likelihood. When you see the actual function and how we can do the gradient descent I kind of intuitively get the idea of the optimisation problem, so I think yeah, really helpful"
- "it helps me better to understand the equations, the formulas, you know in a graphic form. It's adding explanation to it – I think that's good";



Reference/ Further reading

Victor, B. (2011). Dynamic Pictures.

<http://worrydream.com/#!/DynamicPicturesMotivation>

Victor, B. (2014). Humane representation of thought: a trail map for the 21st century. 27th ACM Symposium Proceedings.

<https://dl.acm.org/doi/10.1145/2642918.2642920>

Rolfes et. al. (2020). Learning the concept of function with dynamic visualisations. Front. Psychol., 11, 693.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC7212367/>



Acknowledgements

BUSS6002 Teaching Team

Student Focus Group Participants



Thank you



Question?



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Next session

See the L &T Forum website for next session:

- 5 minutes break and walk to Lecture Theatre 1130, Level 1, Abercrombie Building H70
- **4:45pm – 5:00pm**

People's Choice Awards Presentation &
Closing Address

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L&T Forum
Website



People's Choice Award Polls

Scan me to evaluate the presentations
that you attended



Menti code: 4670 2165

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Thank you!



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