Swan Delta 2019: Reflections of Change

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pronouns: he/him/his

MSLC Occasional Seminar
University of Melbourne

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Outline

1. Delta Conference Series
2. Collaboration
3. Flipped Classroom
4. Assessment
5. Online Resources
6. Questions?

Dr Paul Fijn
Swan Delta 2019
Cristina Varsavsky

*Monash University*

- Biennial conference series on Mathematics and Statistics education
- Held in the southern hemisphere (Australia, South Africa, New Zealand, Argentina, Brazil)
- Inspired initially by the *change* in educational practices
- The 12th conference ‘ Swan Delta’ was held in Fremantle, WA 24–29th November, 2019
- Swan Delta Conference theme: Reflections of Change.
Tanya Evans

*University of Auckland*

Need for more collaboration between those in Maths/Stats Education and lecturers in Maths/Stats

- Lecturers should investigate their teaching more
- Need to analyse what aspects of their teaching are/are not effective
- Avoid reliance on anecdotal ‘evidence’
As discussed at the School retreat (8th November, 2019), there is always scope for more interdisciplinary research and collaboration.
Jessica Libertini  
*Virginia Military Institute*

Discussed effective ways to begin interdisciplinary conversations:

- Often people ask “What math excites you?” or “What math do your students need?”
- Better: “What problems are interesting to you?”
- Also shared some tasks based on interdisciplinary discussions, and how these tasks lead to a change in research by collaborators.
Similar comments about using open questions to motivate and encourage students.
Flipped Classroom

- Where most content is delivered outside of class, and in-class learning is devoted to applying knowledge and conceptual development
- My motivation: *MAST20031 Analysis of Biological Data*
Ng Wee Leng  
*Nanyang Technological University*

Research based on a Linear Algebra class taught using a flipped learning model

- Small sample size: 15 students out of 19 in the class participated
- Used only student responses about amount of time spent on various tasks (videos, quizzes, etc)...did not use metadata
- Overwhelmingly positive feedback (all means/medians $\geq 5$ for 6 point Likert scales)
- Huge variability in length of time spent on various tasks (order of magnitude difference for most types of tasks)
Nazim Khan

University of Western Australia

Statistics class using a flipped learning model

- Assessed effect of online components on attendance at lectures
- No positive impact from flipped classroom model
Tanya Evans

*University of Auckland*

- Utilised quizzes to assess retention of key points from previous lecture
- Optimal inter-study interval is 24 hours
Future flipped learning research

Currently preparing an ethics application for a study in Semester 1, 2020

- Utilising the large class (220+) available
- Analysing the metadata in addition to student perceptions
- Analyse which aspects of the flipped learning experience are (a) valued by students; and (b) useful.
Writing Assessment

Chris Sangwin (University of Edinburgh)
- Students will (attempt to) game any system
- Why not have “tests worth teaching to?”

Kaitlyn Riegel (University of Auckland)
- Students access the internet, not as a last resort, but as a first point of call
- Importance of considering this when writing questions
Emily Cilli-Turner

*University of La Verne*

http://www.creativityresearchgroup.com/

A ‘Creativity in progress rubric’ to help students evaluate and recognise creativity

**Scales:**

- Making connections
- Taking risks
Chris Sangwin

University of Edinburgh

Developing STACK: an online assessment tool

- Similar to WeBWorK
- Allows comparison of consecutive lines of working
- Better (more natural) display of student answers

Also mentioned: https://www.euclidea.xyz/
Diana White

*University of Colorado, Denver*

https://blogs.ursinus.edu/triumphs/

TRansforming Instruction in Undergraduate Mathematics via Primary Historical Sources
Chris Matthews

*Aboriginal & Torres Strait Islander Mathematics Alliance*

Spoke at the School Retreat dinner (7th November, 2019)

Juan Ponce Campuzano

*University of Queensland*

https://www.jcponce.com/p/projects.html

https://complex-analysis.com/content/domain_coloring.html

https://editor.p5js.org/jcponce/sketches/a7rugAqAn

http://www.jezzamon.com/fourier/

Many good visualisations, particularly of complex analysis