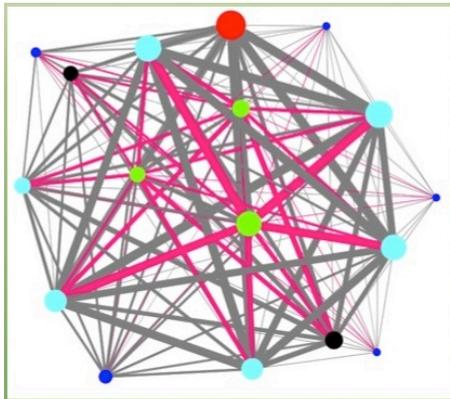




Issue 3 October 2014

MathBench Team Big on 2 Cs: Communication and Collaboration

Communication and collaboration are the two pillars of the MathBench team. The eleven members from seven Australian universities work by Focus Groups tasked to develop and contextualise the American version for students in Australian universities. To achieve this, close interaction among the scientists in the group, and between scientists and mathematicians in the team are more than paramount.



Social network analysis of interaction of biologists and mathematicians when developing MathsBench modules. Lines in pink indicate interactions between focus group Biologists (blue) and Mathematicians (green). Size of node indicate the total number of interactions and widths of lines indicate the number of interactions between nodes. The project also had input from a project manager (red), other biologists (black) and an external advisory group (dark blue).

In a poster developed for presentation in an international conference, the project team, led by Jo-Anne Chuck, analysed the collaboration occurring within the project team. One of the highlights is a social network analysis diagram (on left) that revealed the interaction among the Measurement Group members

and the team’s mathematicians as they take on the task of reviewing the different Measurement topics in biology and mathematics. The amount of engagement among the scientists, but more interestingly of mathematicians with the rest of the group, is interesting and noteworthy. The data were obtained from the team’s project management site, Basecamp.

Dance Floor Heats Up as MathBench US and MathBench AUS Teams Find the Rhythm



We claim in our July Issue that the MathBench project is a perfect dance floor for mathematicians and scientists. Now the project is not only providing space to find rhythm for interdisciplinary collaboration but extending it to cut across international, institutional and language barriers. To contextualise MathBench from the original American to Australian context means to use a language and scenarios that are familiar to Australian students. The dance floor is full. Theirs is *waltz*, ours is *tango*; we say *maths*, they say *math*; *Matt* for us, *Frank* or *Jo* for them; *cholera* for us, *meningitis* for them; *metre* for us, *meter* for them; and so forth and so on. But the bottom line, despite the ‘Yikes’ and Whoahs’ and the

‘flows’ and fluxes’ is that we are in these together. The Australian team edits the modules while the US team revises the original modules into contextualised versions. The dance floor is hot and will get hotter as edited versions go to and fro to get ready for their pilot run in December but we are dancing to the beat and enjoying all the partnerships as we try to work within our timelines!

MathBench AUS Explicitly Defines its Target Users but the Work Gets Tougher

During its most recent meeting in Sydney, some project team members expressed concern that MathBench modules contain low level or high school level mathematics. This prompted a discussion on “Which students are these modules for?” and “Are we serving just the lower end students?” The team decided that MathBench AUS is mainly for science students in first and second year levels of their degree program and contents should be appropriate to those levels. Some modules, however, may be tested in level 3 units as seen fit by unit coordinators. Assumed knowledge from high school will be discussed as take off points towards an integrated and deeper understanding of the concepts in the relevant science units.

MathBench AUS Pilot Trials at Deakin and UWS

Cell Processes and Microbiology modules will be piloted at Deakin and UWS, respectively. Cenk Suphioglu informed the team that he will test the Cell Processes modules in a Level 3 “Cellular Physiology” class during the third trimester as a hurdle requirement thus making the modules compulsory part of the unit. Julie Markham from UWS will use the Microbiology modules in her 2015 summer and first semester classes with graded online quizzes among around 400 science students. In these trials, the team hopes to obtain initial feedback from students on the accessibility and effectiveness of the online modules as a learning resource.

MathBench at ACSME’s Ideas Exchange

The team, led by Lesley Lluka of UQ and Leon Poladian of USyd, facilitated two sessions at ACSME’s (Australian Conference on Science and Mathematics Education) Ideas Exchange session held at the University of Sydney on 30th September. Twenty out of the 32 attendees provided the team with feedback on the:



1) quantitative skills concepts important and essential in their course/units; MathBench modules that fit their course/units; (2) ways these modules could be embedded in their unit/course, e.g. as hurdle ungraded or graded assessment; ways on how modules could improve student engagement and attitude; and (3) intention to participate in the evaluation of some of these modules.

The participants, mostly from the science disciplines, are teaching levels 1 and 2 life sciences units. Most attendees said that they would prefer to embed the modules as an optional requirement and that they would be willing to participate in the evaluation of the modules, with a couple of statisticians/mathematicians interested in participating in the trials to present to their students ‘the big picture of maths’.

Quote

“We believe that integrating mathematics, computation, and the scientific context ... will allow students in an introductory course practical access to conceptual tools that are much more sophisticated than those currently taught in the standard first-year mathematics courses”. - Bialek & Botstein, 2004

For more information on MathBench-Australia project you may contact:
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