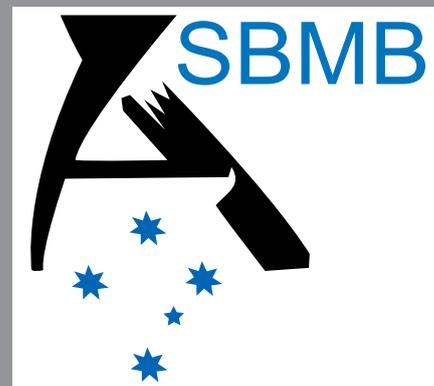


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ASBMB Education Feature

Making a Drama Out of Biochemistry

**Terry Mulhern, Department of Biochemistry and Molecular Biology,
University of Melbourne**

The lights dim, and a hush falls over the audience. An Attenborough-esque naturalist appears on stage and invites us to come in search of 'Aminos'. Two other performers emerge, hopping like kangaroos. The trio then explores how amino acids interact. Posture, gesture and vocal tone are used to personify the 'negative' glutamate and the 'positive' arginine. They elicit laughs and 'oohs and ahhs' as they draw us into their imaginary world. We are emotionally engaged. The Grand Finale of *The Performing Sciences* for 2019 is off to a flying start!

Three weeks earlier, 27 Bachelor of Biomedicine students volunteered to devise short theatrical performances illustrating biochemical concepts. The idea is this process will help both them and their classmates understand this material better.



Rinske
Ginsberg
(left) and
Terry
Mulhern.



Acting
skills
workshop.

First, there is an acting skills workshop – developed by Rinske Ginsberg from the Victorian College of the Arts and Xanthe Beesley from Union House Theatre. The students engage in theatre 'games' where they communicate with their bodies, building a physical 'palette' from which to devise scenes in the coming weeks. Most participants are theatre novices – but are having fun and have shed their initial apprehension. At the end of the workshop, they form small groups and discuss ideas.

In the second session, each group presents a draft of their concept. We give feedback on aspects of the



science and performance, while other students suggest what is working and what is not. Giving and receiving feedback are key to the project's aims. At the outset, participants received guidance on effective feedback from Sarah French from the Melbourne Centre for the Study of Higher Education. Afterwards, we move from group to group, helping them refine their performances. The third session is dress rehearsal. Elements like lighting, music and cues for entries and exits are nipped out. There's a great vibe. The stage is set for the final week.

At the Grand Finale, the theatre is bubbling with excitement. We know these students are stepping way out of their comfort zones, so to maintain a supportive atmosphere the live audience is restricted to participants. Everyone laughs in the right places and applauds enthusiastically. The performances are filmed, edited and then released to the rest of the class.

Participant feedback over the last two years has been overwhelmingly positive. Students feel they understand the material better and cite enhanced confidence and presentation skills.

The Performing Sciences



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“Acting out the concept required us to build a very deep understanding”

“Confidence, creativity and improvisation were all really important skills I feel like I strengthened in this!”

They also say the teamwork engenders connectedness that is lacking in massive lecture theatres and online courses.

“I feel much more connected to other students in the class, and definitely more engaged in the subject”

The Performing Sciences is about more than science communication. The participants have moved beyond the cognitive to engage the affective aspect of learning and break the reason/emotion dichotomy that is imposed between science and the arts.

“I have acquired a new way of looking at things in general. This experience has simply been invaluable.”

There is something visceral about embodying science – a kinaesthetic understanding that makes the abstract more tangible. We all share the physical context of our bodies and capacity for emotional response. We watch the actors and we are engaged. We feel what they feel. That’s the power of theatre.

Reference

1. Aston R, Mulhern TD, Ginsberg R, French S (2018) *The Performing Sciences*. Proceedings of the Australian Conference on Science and Mathematics Education. Flinders University, September 2018.

Associate Professor Terry Mulhern is the Director of Teaching and Learning for Biochemistry and Molecular Biology in the School of Biomedical Sciences at the University of Melbourne. tmulhern@unimelb.edu.au



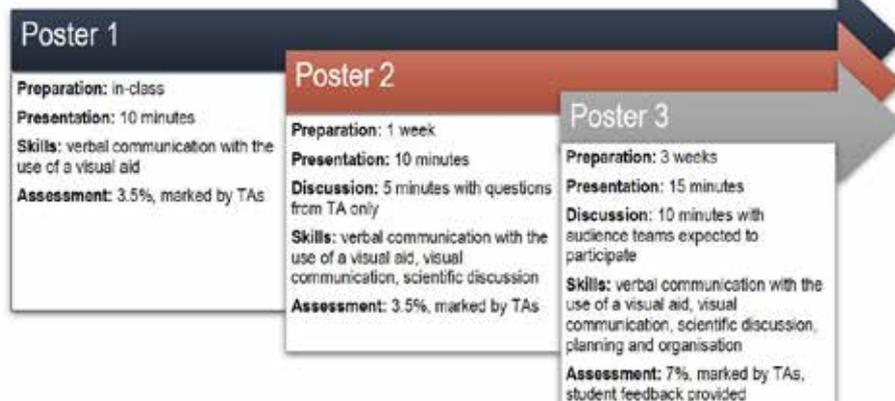
From the Whiteboard to the Conference: Scaffolding Conference-style Poster Presentations

Jessica Gibbons, Biomedical Discovery Institute, Monash University

In 2018, the availability of a large-scale, purpose-built active learning space provided an opportunity for innovation within a 2nd year biochemistry-based Biomedical Science Unit. The workshops transitioned from small tutorial rooms with approximately 25 students and one teaching associate (TA) to a space catering for 144 students and a teaching team consisting of eight TAs. We now had access to whiteboard tables, whiteboard walls and a room set up for collaborative group work. What we lost however, was the capacity to run our existing PowerPoint-based oral presentation

assessments. With the number of students and only one central computer, it was physically impossible to run group presentations in one session. Seeing opportunity in the new facilities (a room lined entirely with whiteboard walls), we decided to replace PowerPoint presentations with poster presentations, allowing students to develop their verbal and visual scientific communication skills. Over the course of the semester, students were required to compile three posters: two on their whiteboard walls and one final conference-style, printed poster.

At the start of semester, students were introduced to the concept of a scientific conference poster and were provided a range of resources from the library detailing the key features of a poster and its accompanying presentation. The teaching team also brought in example posters to show students a variety of ways in which to present information in a concise, visually appealing and informative manner. After each session, students were assessed and received feedback on key aspects of their visual and verbal communication, in order to reflect upon prior to subsequent sessions.



Scaffolding scientific poster presentation over three sessions involved layering key elements, building up to a full-scale poster and presentation.