Why are we still teaching the way we were taught in the 1980s?

Bedgood, Danny R., Yates, Brian, Buntine, Mark, Pyke, Simon, Lim, Kieran, Mocerino, Mauro, Zadnik, Marjan and Bridgeman, Adam. 2008. Why are we still teaching the way we were taught in the 1980s? *Chemistry in Australia*, vol. 75, no. 11, December/January, pp. 22-23.

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Why are we still teaching the way we were taught in the 1980s?

Over the last several years some lecturers have become increasingly frustrated about the lack of progress in teaching methods in university chemistry classrooms. Danny Bedgood explains.

When we were students in the 1970s and 1980s we were lectured to. This began to change when Richard Felder, now of North Carolina State, introduced the use and benefits of cooperative learning methods in large classrooms. Such student-centred learning techniques have been a tool in some (but not enough) classrooms since their first suggestion over 40 years ago. Such techniques change the dynamics of a classroom from one in which knowledge is delivered, to one in which knowledge is constructed. A classroom that utilises guided-enquiry learning methods (in which teams of students with mixed abilities work together in small groups on carefully designed exercises) looks and behaves very differently to a ‘traditional’ classroom. Students today enter university study with life experience, work demands, learning approaches and expectations that are very different to those in the past; such changes in students suggest there need to be changes in the way we instruct students if we are to effectively help students to learn.

In an active-learning classroom the instructor no longer ‘teaches’, but creates and fosters an environment where students learn; the instructor acts as a facilitator as students teach themselves. Shifting the responsibility to the students for their learning utilising these methods provides several benefits: students are motivated to become more active in their learning; the social learning environment provides student support; the limits of student attention span (typically 20 minutes) in traditional lecture are alleviated as student activities within the classroom change minute by minute. Students learn better in such an environment because it allows assimilation of new material into student’s existing schema – they literally build their new knowledge onto what they already know.

A newly funded project by the Australian Learning and Teaching Council, ‘Developing leaders of change in the teaching of large university chemistry classes’, aims to establish excellence in science learning and teaching in Australian universities, with a focus on first-year science programs characterised by large lectures, didactic teaching methods and monocultural learning environments. The project aims to develop academic leadership capabilities and ‘leadership for excellence’ through the creation of a purposeful network of science learning leaders and to systematise the collaborative development of learning and teaching innovation through a science learning hub. Both leadership and classroom innovation strategies have been identified as critical to the success of change, because, as Scott, Coates and Anderson point out, ‘Change does not just happen – it must be led, and led deftly.’ This project aims to lead deftly a qualitative shift away from monocultural and unidirectional didactic teaching methods in science lecturing in Australian universities towards teaching methods that are diverse, multidirectional and that foster student-directed learning and enquiry.

**Outcomes**

Initially, six universities around the country will be involved in practice-based innovation: Charles Sturt University, University of Sydney, Curtin University of Technology, University of Adelaide, Deakin University and University of Tasmania.

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<th>Table 1. Domains for sustainable learning and teaching innovation</th>
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<td><strong>Domains</strong></td>
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<td>Learning leaders</td>
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<td>Practice-based learning and teaching innovation</td>
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<td>Learning hub</td>
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Three domains have been identified as the architecture upon which sustainable learning and teaching innovation will be built (Table 1).

Over the next two years the project leaders will:

- undergo practice-based training and development to lead to learning and teaching innovations in their own classrooms; as a model of student-centred teaching methods experienced educators/facilitators with the NSF-funded POGIL project (www.pogil.org) will lead this training
- undergo leadership training and development to equip them to foster and develop in colleagues at their university a change in classroom practices
- serve as science learning leaders for innovation in their colleagues’ classrooms
- disseminate learning and teaching innovation and learning leadership to other universities. Practice-based training will lead to learning and teaching innovation in classrooms at neighbouring universities; leadership training will develop a new group of science learning leaders at neighbouring universities to promote and systematise a change in classroom practices.

This project will lead to the development of Australian-oriented classroom materials and workshops, and professional development workshop experiences to help build leadership skills in motivating and leading change in teaching practice.

REFERENCES