

MEDIA RELEASE



Tuesday, May 15, 2007

Embargoed until 7am Tuesday, May 15

News editors: Professor Tytler is available to do briefings and interviews all day Monday, May 14. A copy of the full report should have been forwarded to you from ACER. Please contact Louise Reynolds 0419 340 058 if not.

Deakin academic's plan to solve science education crisis

Teachers hold the key to solving the current crisis in science education, argues Professor Russell Tytler, Deakin University's Chair of Science Education, in a special report on Australian science education released today (Tuesday, May 15).

His comprehensive report looks at the factors which have created the current crisis in science education and how they can be fixed.

He argues that science has changed irreversibly and school science needs to change in line with the discipline to reflect contemporary science practices and applications. Both teaching and assessment need to reflect the changes and most importantly students need to be freshly engaged in studying science.

Professor Tytler's review argues that science education in schools needs to be 're-imagined' to respond to the changing times and changing attitudes and expectations of Australian youth.

The report, Australian Education Review 51, *Re-imagining Science Education: Engaging students in science for Australia's future* was published by the Australian Council for Education Research (ACER). It arose out of a national ACER sponsored conference looking at how to enhance Australian students' learning in science.

"Teachers are key to how and what students learn in their science classes and any attempt to re-imagine the science curriculum must involve teacher learning," Professor Tytler argues.

Professor Tytler contends that the shape and content of Australian school science curricula have been decided by science discipline experts with traditional views and commitments to abstract conceptual ideas and structured knowledge that neither reflect the realities of science nor serve the needs of Australia in the 21st century.

"The fact remains traditional school science has not changed at the core in the last 50 years despite considerable social change.

"School science needs to catch up very quickly or it will go into serious, perhaps irreversible decline. The broader damaging and social consequences for Australia, given the focus on science in countries like China and India will be profound.

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“The traditional approach has allowed science to position itself as a high status subject recruiting a science elite but has also limited the school curriculum to training future science professionals, and does not attend to the need in Australia to develop a ‘science-savvy’ citizenry capable of engaging effectively with science at a personal or societal level, with the water crisis for instance, or personal health management.

“Science teachers tend to teach and assess students as they were taught and assessed through school and university. It is a self-reinforcing cycle which needs to be broken.

“Science teachers have grown up in this traditional science education culture. It is the version of science that is represented within school textbooks, laboratory activities, and assessment practices.” “The focus needs to change, if we are to train scientists and citizens with the problem solving, communication and analytical skills valued within the field. “

Professor Tytler’s own research supported schools and teachers to improve their classroom science teaching. “There are many exciting stories of established teachers changing their practice, with the support of group processes, consultants and materials.

“In some schools, students have put pressure on teachers for change.”

He argues that despite conservatism and resistance to change, many teachers of science are looking for ways forward. The report cites many examples of innovations in curriculum, such as school programs that link with local community science resources. For these to become mainstream, however, a determined program of teacher development is needed, and a flexible curriculum.

“Deakin has modified its combined Bachelor of Science / Bachelor of Science Teaching program to respond to extensive research in this area,” he said. “It is aimed at producing both scientists and science teachers who are innovative and attuned to contemporary science practices.”

Professor Tytler criticised moves towards a national curriculum that is narrowly conceived and, despite the rhetoric, is ‘more of the same’. He commended curriculum-based programs like the Federal Department of Education Science and Training’s Primary Connections to the extent that they encouraged and supported variation at the local level within a framework that was innovative in content, and teaching approaches.

“Any serious attempt to support teachers implementing a significant science curriculum initiative in Australia will need to encompass both resource development and a significant professional learning approach that will allow local control and variation and that is supported in local areas through networks and consultants.”

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