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Science Engagement and Enrichment at Distance

Project Title	Science Engagement and Enrichment at Distance (SEED): Initial planning and SEED Project
Project Team	Development of proposal: Jim Davies and Will Morony (SiMERR SA) and Rob Ball (SiMERR SA consultant). SEED Project: Jim Davies (SiMERR SA), Ian Maynard (SiMERR SA consultant) and representatives of the school and non-school partners.
Period	March 06 – December 06 and January 07 – June 08
Funding Agency	SiMERR and Australian Schools Innovations in Science, Technology and Mathematics (ASISTM – Round 4)
Organisational Base	SiMERR SA

Description

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This project engaged teachers and students working collaboratively with members of the education, business and industry communities who are generating accessible resources designed through interactive processes, to enhance and enrich the teaching of the formal science curriculum.

The initial planning project explored the utilization of distance education modes of delivery and the development of mentoring support for teaching staff in rural and regional schools and lead on to a successful application for an ASISTM grant to implement the proposal. The full project saw 13 separate projects involving schools working with non-school partners. The overall SEED Project was seen as a pilot and 'proof of concept'. That is, it aimed to demonstrate some approaches that could be more widely and systematically applied, to the advantage of the teaching and learning of science in country SA.

In the full SEED Project each of the projects was crafted to meet the needs and aspirations of the school and non-school partners. In broad terms, each project involved people from the non-school partners adapting materials and approaches for delivery to the schools 'at distance'. These materials and approaches were trialled in the schools. For example, Poonindie Primary School and the Molecular Plant Breeding CRC and Australian Centre for Plant Genomics have developed, tested and documented a primary school module commencing with a 'Working Scientifically' capacity building section, followed by a specific scientific investigation. In this case, the specific investigation was 'A scientific investigation of grain dust'. The design of the module is such that it could accommodate a wide range of specific investigations.

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Schools: Jamestown Community School, Peterborough Primary School, Tumby Bay Area School, Lake Wangary Primary School, Poonindie Community Learning Centre, Leigh Creek Area School, Wallaroo Primary School, Orroroo Area School, Eudunda Area School. Each school had at least 2 teachers and one class of students (approx 12-15 given small size of many of the schools).

Non-school partners: SA Museum, CSIROSEC (SA), Molecular Plant Breeding CRC, Australian Centre for Plant Functional Genomics, SA Chamber of Mines and Energy, SA Botanic Gardens, Robotics Peer Mentoring Program (University of SA), Engineers Australia (SA). In general there were one or two people from these organisations heavily involved.

Findings

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Where schools had an actively supportive Principal, access to relief teachers, a reasonable level of IT knowledge and confidence, a reasonably calm day-to-day environment, a keen teacher, and an energetic non-school partner, rural and regional students were able to be engaged in learning science through virtual means. As each one of the above conditions were not able to be met, the engagement of the students in science learning through virtual learning decreased.

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The Molecular Plant Breeding CRC (MPBCRC) and the Australian Centre for Plant Functional Genomics have developed a

set of quality 'Working Scientifically' teaching and learning activities for upper primary students, including an adaptable framework for a local scientific investigation. The program includes a videoconference session with one of the MPBCRC scientists. This is supported by an interactive DVD, and is posted on the ASMS website for schools to use.

The South Australian Museum developed a process to better support regional schools in the use of their Discovery Cases. This involved upgrading the Discovery Cases to make them more robust, and the use of Centra technology and Smartboards to allow virtual face-to-face contact between the students and the Museum's Education Officers. Further, the Education Officers are able to refer students' questions to the museum's scientists for responses. This is documented on the ASMS website, including a link to the material on the SA Museum website and contact information for the Museum's Education Officers.

The South Australian Chamber of Mines and Energy (SACOME) developed an excellent interactive "Earth Matters" area on their website, available to all schools. Some documentation relating to the programs supported by SACOME are on the ASMS website, including a link to the Earth Matters site. However, SACOME's Education Officer has left them, and it is not clear whether and when the position will be re-filled.

CSIROSEC developed processes and protocols which permit them to deliver, via interactive video, scientific demonstrations previously only available to students by a visit to CSIROSEC's city premises, because of the complex and bulky technology involved. These are documented on both ASMS and CSIROSEC's websites.

Further information about materials produced can be found on the ASMS website.

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A number of the non-school partners have developed knowledge and skills that they can exploit in the delivery of their outreach programs. Many also developed resources that fit their profiles and the work that they do. At this level, SEED is likely to have an ongoing impact.

At the broader level, significant effort was expended during 2007 informing key officers of the SA Department of Education and Children's Services about the SEED project and encouraging them to build on these pilots. Despite positive responses, there has been no evidence of this in practice in 2008.

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