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The National Centre of Science,
Information and Communication Technology,
and Mathematics Education
for Rural and Regional Australia

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Context Rich Integrated Maths and Science

Project Title	CRIMS - Context Rich Integrated Maths and Science
Project Team	Dr Colleen Spence (Merici College, Canberra), Ms Sue Wilson (SiMERR ACT).
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Funding Agency	Australian Schools Innovations in Science, Technology and Mathematics (ASISTM – Round 1)
Organisational Base	SiMERR ACT

Description

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CRIMS - Context Rich Integrated Maths and Science - in association with Merici College, St Clares College, St Francis Xavier College and Daramalan College - aimed to produce 25 well-developed and tested context-based teaching resources to promote innovation and student interest. CRIMS tasks integrate mathematics and science, and are inquiry based and student-centred. Teachers and industry partners collaborated on their planning.

A teacher resource pack was developed to support teachers writing CRIMS tasks and a consultant, Charles Lovitt, assisted to refine task criteria during intensive sessions on open-ended investigations. The project involved students in the use of handheld technology. Designed for Years 7 to 10, the resources were trialled at multiple partner schools and are transferable to other schools nationally through CRIMS-online.

Participants

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Ten science and mathematics teachers from four ACT schools - Merici College, St Clares College, St Francis Xavier College and Daramalan College.

Findings

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The teachers were committed to quality teaching and the benefit of using open-ended tasks in the classroom. However, change requires time, not only to physically develop new resources, but also to discuss and reflect on the path of change that is suitable for each teacher and in the context of their students. Teachers said that they appreciated the time that the project gave them to develop some CRIMS tasks. Teacher feedback served as a form of evaluation, indicating a need for teachers to be provided with professional development workshops on creating and using open-ended investigations and problem-based activities.

The CRIMS project at Merici College also received strong support from parents of students involved in the project. Unsolicited parental comments to teachers and school leaders have been supportive of the philosophy of CRIMS and many parents commented on a positive shift in their child's approach to mathematics and science (mathematics in particular).

Outcomes

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Materials

The CRIMS project delivered teacher developed and tested context based teaching resources that promote innovation and student interest, and pro-forma, including development criteria, to support teachers in resource development. Teachers developed tasks that used engaging contexts to make connections between scientific and mathematical concepts and skills. These materials are freely available on the CRIMS website - http://www.crimsonline.cg.catholic.edu.au.

Conference presentations

- Wilson, S. (2005, September). CRIMS: Context Rich Integrated Maths and Science – Gambling on Energy. Paper presented at the joint conference of the Queensland Association of Mathematics Teachers (QAMT) and the Science Teachers Association of Queensland (STAQ), Brisbane, Qld.
- Wilson, S. (2006, July). CRIMS: Context Rich Integrated Maths and Science. Paper presented at the annual

conference of the Australian Science Teachers' Association (CONASTA), Adelaide, SA.

- Wilson, S. (2006, July). CRIMS: Open-ended investigations integrating Science and Mathematics. Paper presented at the annual conference of the Australian Science Teachers' Association (CONASTA), Adelaide, SA.
- Wilson, S. (2006, September). CRIMS: Context Rich Integrated Maths and Science – Engaging Students in maths and literacy: Practical ideas for the Classroom. Paper presented at the Mathematics Education and Literacy research flagship conference of the Australian Catholic University. Brisbane, Qld.
- Wilson, S. & Klinkert, M. (2005, December). CRIMS: Context Rich Integrated Maths and Science. Paper presented at the annual conference of the combined Science and Mathematics Teachers of South Australia, Adelaide, SA.
- Wilson, S. & Spence, C. (2006, August). CRIMS: Context Rich Integrated Maths and Science – Value adding: Adding Value. Paper presented at the annual conference of the Canberra Mathematics Association. Canberra, ACT.
- Wilson, S. & Spence, C. (2006, August). CRIMS: Context Rich Integrated Maths and Science – Boosting Science Learning - What will it take? Poster session presented at the research conference of the Australian Council for Educational Research. Canberra, August.

Impact
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The principal deliverables of the CRIMS project were teacher-developed learning resources. They aim to support teachers by providing well-developed and tested context-based teaching resources to integrate learning experiences for their students in the areas of mathematics and science. Teachers reported changes in their classroom practice, particularly the use of more open-ended investigations and problem-based activities. On-going and sustained changes in curriculum resulted from the CRIMS project, for example at Merici College the integrated science and mathematics subject is now part of the curriculum of two of the four Year 7 classes. Teachers shared their tasks at PD days.

CRIMS tasks were made freely available in an online format through the dedicated project website, CRIMSonline (http://www.crimsonline.cg.catholic.edu.au). The online component is open to growth, inviting ongoing contributions from teachers, and feedback has been received from schools in Australia and New Zealand. Professional development workshops, conference presentations and articles further informed a wider audience.

Related documents
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