



Case Study

Australia
Intel® Teach Program

Geoisland: A study of change and consequences

Participating in the Intel® Teach Program enabled a teacher on Kangaroo Island to deepen students' understanding of their environment's complex issues, and better understand change and its consequences for their island home.

The goal was for students to critically examine local geology and the island's unique and fragile ecosystem, and explore their own role and place in their island environment. A range of Information and Communication Technologies including the internet and the Intel online thinking tools engaged and supported student learning and helped open their eyes and minds to see that "where you live has a big impact on who you are" (student).

"...after my Intel (Teach) training I am now more conscious of how I incorporate it (ICT) into unit plans as a learning tool to engage students. I think more about when and why I'm using it."

Eulia Ley, Teacher at KICE – Parndana Campus and Intel Teach Master Trainer

Challenges

- All students need rich learning experiences to develop 21st century skills to think, question, make decisions and solve problems.
- Teachers need to provide opportunities for students to construct relevant and authentic learning experiences which are thinking oriented and use appropriate technology.

Approach

- Provide professional development including the Intel® Teach Program to enable teachers to integrate technology and thinking tools into learning programs. This will assist students gain digital literacy, critical thinking and become more adept at collaboration.
- Employ project-based learning to help engage students in meaningful learning experiences, including projects addressing real-world issues.

Benefits

- Teachers incorporate freely available powerful interactive online thinking tools to support the development, use and assessment of higher order thinking skills by their students.
 - Changed teaching practices result in increased student engagement, greater creativity, enhanced critical thinking and improved communication skills.
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Intel® Teach Program: A Case Study

Growing up on Kangaroo Island (KI) in South Australia has implications, not least for teenagers. The transition to adulthood brings with it the need for young people to question what they see around them, and explore their sense of responsibility and ownership for what happens.

Eulia Ley, a teacher at Kangaroo Island Community Education (KICE) - Parndana Campus, wanted to encourage student enquiry and engagement with questions concerning the past, present and the future of Kangaroo Island. During participation in the Intel® Teach Thinking with Technology Course, Eulia took a paper-based unit of work, which she had previously taught, and embedded technology at strategic stages. For Eulia's year 9 students at Parndana Campus the unit was an eye opener not only in terms of the power of the technology, but also because the powerful learning and collaboration awoke students to the fact that what they were doing and learning about really mattered, and that they could and should strive to make a difference to their world.

Entitled 'Geoislands', the unit of work centred on the Essential Question, "How are our lives affected by the choices we make?" Many of the students had strong views about growing up on KI and the positive and negative changes they saw around them. As teenagers they were interested in their own world and identifying and establishing their own place in it. Although some students saw life on Kangaroo Island (or the 'Rock' as locals affectionately call it) in some ways dull and disconnected to the real world, all of the class regarded the island very much as their home, and valued its unique environment. "I hope the island doesn't become like the city, with big buildings and things like that" (student forum post).

Eulia, an experienced teacher, but also a geologist and KI National Parks Officer who has led fauna, sea lion and penguin tours, was ideally positioned to help students work through questions such as "Why are islands unique?; What is special about KI?;" and, "Are there consequences of change for this island?"

When integrating technology, Eulia recognised the importance of "deciding on the best tool for the job" and was conscious of "incorporating technology when appropriate, not forcing or using it when it was better to use paper and pencil or hold a face to face discussion". Technology was used to engage her students; the internet was used for research, a web-based learner management system (LMS) for interactivity and the Intel online thinking tools for scaffolding student thought.

In addition, knowing that students were confident and competent using computers and that they had sufficient access, Eulia included online tasks - forums, chats, activity banks, web resources and quizzes, to encourage shared learning between them. *The Seeing Reason, Showing Evidence and Visual Ranking Tools* allowed their thinking to be visible, lead to healthy debate and helped them respond to differing points of view with more understanding and empathy.

Geoislands - the teaching and learning activities

Eulia's strategy was for students to work through a series of teaching and learning activities which would enable them to begin to address the unit's overarching Essential Question "How are our lives affected by the choices we make?" Students conducted internet research and collaborated in individual and group projects and Intel thinking tools tasks. They compared hypothetical decisions and consequences with real situations they regularly encountered themselves. Each activity built on the students' prior



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Student

knowledge and encouraged the interchange of ideas for informed decision making, reflection, analysis and making moral judgements.

Following brainstorming to ascertain what students already knew, internet research allowed the acquisition of increased knowledge relating to what an island is and where other islands exist in the world. A web-based research task on the Galapagos Islands led into a class forum on "Why are islands unique?" A study of the geomorphology of islands as isolated 'closed' systems helped them visualise how islands are formed and the *Seeing Reason Tool*, with its cause-and-effect mapping, helped them identify and analyse links and connectedness between island features.

In groups students 'created' imagined island models. Global issues that are known to affect islands e.g. earthquakes, global warming, ecotourism, feral animal introduction and oil spills, were all considered prior to using the *Visual Ranking Tool*. By ordering and prioritizing potential social and environmental changes, this tool helped them identify a justifiable ranking order of the severity of potential changes on their imaginary island.

Using their knowledge of KI and the impact of change noted on their imaginary island, they began to weigh up the benefits and problems associated with current and possible changes to their island home. Viewing a powerful local film of another young person's thoughts on growing up on KI led to reflection and individual opinions on "Are the current changes on Kangaroo Island leading to the future you want for your home?" Intel's *Showing Evidence Tool* helped the students make more informed decisions through hypothesis, comparison, analysis and applying value judgments which both supported and contradicted their own views.

"I've never really thought that my choices affect the island but I guess they do, in a very minor way. Living with someone like my mum though, she tries really hard to be self-sustainable. She grows a lot of the vegies we eat, she makes the bread, has goats for milk, chickens for eggs and sheep for meat. This has a small impact on our island because Mum is not using so much fuel to drive to Kingscote to buy groceries. We as a family then are not polluting the land by using fuel." Student

The students reacted positively to the learning because each had a connection to the island. They enjoyed making decisions and taking on active learning roles as they brought their deliberations and discussion

back to the Essential Question "How are our lives affected by the choices we make?"

The unit's rich and authentic learning came together when students made connections with other subjects and saw that their learning had deeper relevance outside the classroom. It was a valuable way for them to learn about and understand the unique nature of their home, to critically review their own prejudices, to consider other points of view and to analyse island issues based on evidence and reason.

"I don't think not caring is a valid choice. This is our island; I think we should be passionate about what happens to our island. It is a special place." Student

Eulia is confident that she will continue to improve this unit based on her students' feedback and classroom experiences. She is keen to customise the unit further to the specific environment of KI and its youth, and sees the importance of continually evaluating and improving how and where she integrates technology. "I had used ICT before with students as a tool, but after my Intel (Teach) training, I am now more conscious of how I incorporate it into unit plans as a learning tool to engage students. I think more about when and why I'm using it."

Using innovative and effective ICT is a vital component of teaching and learning for each of the 3 KICE school campuses. It is seen as one means to expand student learning opportunities and help breakdown the isolation of island life. Networks, computers, pods and suites are spread across the school and laptops are available to borrow in class sets. Students access video conferencing facilities and utilise interactive whiteboards as they communicate and collaborate with one another and with schools and students on the mainland.

Eulia and colleagues from Parndana Campus have gained ICT integration skills through participating in the Intel® Teach Program in South Australia. As a Master Trainer for Intel Teach Thinking with Technology, Eulia has supported these Participant Teachers as they increasingly use technology to address and assess higher-order thinking skills and support deeper student understanding.

Kangaroo Island (KI), Australia's third largest offshore island, lies 40 kilometres south/west of South Australia's Fleurieu Peninsula. Over 4,000 kilometres in area the Island is seven times the size of Singapore, yet has a permanent population of only 4,400.

Isolated from the mainland, spared widespread damage from European settlement, and with no introduced animals such as foxes and rabbits, Kangaroo Island retains more than half of its native 'old-growth' vegetation across a vast area of some 2,250 square kilometres. With its unique geology and the abundant and varied flora and fauna it is a well-known eco-tourist destination.

More than one third of Kangaroo Island is National or Conservation Park. Echidnas, platypus, goannas, wallabies and kangaroos abound. Seals loll on the beaches and Southern Right whales pass by on their migration from Antarctica to the Great Australian Bight.

An aging population and the loss of some islanders who move to the mainland for work or further education opportunities has brought realization that education and retaining the island population are important to the Island's future. Kangaroo Island Community Education (KICE) was formed through the amalgamation of Island school and preschool sites and services to deliver education from birth, through to post school community programs. Educating young people about their own island environment is seen as an important goal.

Intel Teach Program

Intel is committed to improving education to prepare students to thrive in the global knowledge economy. One of Intel's most successful worldwide programs is the Intel Teach Program, a professional development program that helps teachers improve the effective use of technology in the classroom to promote 21st century learning. The Intel Teach Program was introduced into Australia in 2003.

The Intel Teach Program is adapted in each country to address specific needs and has been localised by Australian teachers. The portfolio offers a range of face-to-face and online offerings designed to enable teachers to introduce, expand and support 21st century learning in the classroom.

The Intel Teach Program is a joint initiative between Intel and participating Departments of Education. The program is also offered to pre-service teachers in selected universities.

Evaluation Data on Intel Teach

The program has gained wide acceptance amongst the teaching community. A longitudinal evaluation, conducted by Deakin University¹, shows that as a result of the Intel Teach Essentials Course teachers are increasingly using technology to plan and implement lessons that are inquiry driven and student centred. They are using technology and project based approaches more frequently to create a learning environment in which students develop 21st century skills such as collaboration, problem solving and critical thinking.

Evaluation results are indicating an increased impact on schools; following the course, 96% of teachers are seeing an increase in the integration of ICT across their school classrooms; 82% have developed new unit plans based on the Intel Teach framework, mostly in collegiate teams, and 83% are using technology in new ways.

The strong alignment of the course to the states' curriculum and pedagogical initiatives has been very significant in influencing its impact at a classroom level and its capacity to support whole school change towards technology based learning.

To date, more than 17,000 Australian in-service and pre-service teachers have completed the Intel Teach Program, together with over 6 million teachers in more than 40 countries.

Intel® Education Initiative

The Intel Education Initiative is Intel's sustained commitment to prepare all students, anywhere, with the skills required to thrive in the knowledge economy by improving teaching and learning through the effective use of technology, and advancing maths, science, and engineering education and research. Through a sustained public-private partnership with educators and governments in more than 50 countries, Intel works with international organizations and governments at an international, national, and local level. It invests approximately USD100 million per year in education programs adapted to address the needs of each country to advocate for 21st century educational excellence through policy work and awareness efforts.

For more information on the Intel Education Initiative and the Intel Teach Program, visit: www.intel.com/education/au

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¹ Intel Teach Essentials Course Impact Evaluation, Deakin University, 2006

