How can we best prepare Australians for the 21st century?

Laurie Campbell, Angela Cooke, Judy Travers
• The vision for 21st-century learning is not a distant reality. It is taking shape across Australia where Microsoft is supporting initiatives by policymakers, departments and individual institutions to change the way education is delivered, assessed and managed.

• This workshop will focus on using ICT to provide personalised learning advantages to accommodate student diversity in the 21st century.
Participants will:

- Receive a short overview of Microsoft’s ‘Partners in Learning’ initiative, in which Microsoft is partnering with departments of education in projects that support the innovative use of ICT.

- Will learn about the work being undertaken by departments to accommodate student diversity; in particular:
  
  - investigate Education Queensland’s approach in using new and emerging technologies to foster innovative practice, professional learning and resource development to support its educational community.
  
  - explore a case study from the Tasmanian Department of Education which focuses on the use of ICT to create online programs to engage students who are highly able / gifted.

- Take away innovative ideas and resources for the use of ICT which can be put into practice immediately.
• Education changes lives, families, communities and, ultimately, nations/countries/territories

• Despite real improvements in access to, and use of, information and communication technology (ICT) around the world, many students and teachers still lack basic access to technology and training

• The result is a widening ICT skills gap that contributes to disparities in quality of life, competitiveness, and economic development.
What is Microsoft Partners in Learning?

- $253 million worldwide initiative over 5 years
- **Partnerships** with ministries of education so that initiatives are aligned with national / regional / local priorities in the area of education
- **Partnerships** with universities, NGOs, businesses, etc so that Microsoft can assist in delivering what education needs and wants
- **Partnerships** with educators, school principals, teachers, etc, who are the gateway to students
- Currently running in 101 countries.

“Technology has the potential to remove barriers for students and educators everywhere”
• Worldwide Initiative: Local execution
• All states & territories included, plus PNG and Fiji
• $10 million in cash plus curriculum and professional learning resources over 5 years
• Program elements include:
  • Unique state projects
  • Innovative Teachers’ Awards & program
  • Fresh Start for donated computers
  • Curriculum and professional learning resources.
Partners in Learning Model – Queensland

ICT Learning Innovation Centre

• Developing, researching and incubating innovative curriculum design and student-centred learning approaches
• Creating new professional development opportunities with learning technology
• Delivering learning technology consultancy and advisory services
• Promoting professional learning partnerships with industry and tertiary institutions to create new pathways for students
• Expanding international education markets through accredited ICT programs
- Test/trialling of new and emerging technologies and their application to learning/curriculum

- Influence systemically the way technology is viewed and utilised in learning and professional development – both transformational and transactional

- Enabled the formation of sustainable networks and peer coaching/support structures around specific ICT interest area/s

- Development of robust school/industry relationships for students’ direct pathway into ICT related industries.
Partners in Learning model – Queensland

- Thinking Digitally Project – Digital Literacy with technologies (Capturing and Sharing IP)
- Spatial Information in Schools Project
- Games in Learning Project (Game making, playing and designing)
- Interactive Whiteboards in the Classroom Trial
- Marvin Project (Instructional Based Software)
- Architecture Furniture and Technology Project.
Partners in Learning - Focus Areas - Queensland

- **Implementing strategic approaches** – Regional strategies to build capacity/systemically influencing pedagogy – curriculum integration models

- **Providing professional development** – opportunities locally and regionally through quality assured Accredited Facilitators – supporting major and minor events, conferences and workshops

- **Building partnerships** with Industry/Government/Tertiary – aligning and leveraging sponsorship, grants and funding and providing interface between schools and industry

- **Fostering professional learning communities** – through peer mentoring/coaching. Expanding networks/listservs etc

- **Communication and marketing** – promoting success and innovation and project reporting (05/06 PIL projects facilitated over 150 events statewide impacting directly on over 3300 teachers with an additional 6700 instances of follow-up support)

- **Research and Development** – new and emerging technologies

- **Curriculum resource development** – evolving new multimodal resources including Podcasting/Website/Rich Media Case studies/Fact Sheets/Learning Objects
Partners in Learning Outcomes - Queensland

- What does it look like in practice? Thought coaching

- Creating sustainable communities/networks mentoring and peer coaching

- Supporting professional development and building flexible ‘throw away’ resources

- Building workforce capacity – regional models promoting local events with quality assured facilitators

- New ways of learning – rich media resources for mobile technologies and new learners.
Interactive White Board Trial - Queensland

• “I was lucky enough to trial a new interactive whiteboard with my early childhood class. Every document becomes a digital resource that I can reuse and record. This technology enables me to easily recall information to share with students and their parents and encouraged students to share what they learnt with their peers. This has resulted directly in productivity gains for my classroom as I now negotiate curriculum daily with my students. The use of the IWB has also provided significant motivation for my reluctant writers, as they love the tactile and visually engaging medium and being able to see their stories come to life on the big screen. This new technology has revolutionised my classroom and the way I teach. I cannot imagine teaching without it.”

  (Early Childhood Teacher, Chancellor State College)

• “Students now have more access to ICTs through the introduction of IWBs. Previously students required one-on-one support to access a computer, now each student is using the IWB several times a day. The size, tactile nature and general colour of the screen maintains their interest and attention, and allows students to explore, play and learn.”

  (Teacher, Currimundi Special School)
• Pimlico State High School has been integrating GIS into a variety of teaching units including analysis of graffiti, infrastructure studies, shade and assessing the water quality of Townsville's major waterways (working closely with Townsville City Council)

• North Keppel Island EEC have launched virtual field trips to the centre and environmental management and coral mapping around the island. GPS technology is being used for students to capture vegetation data

• Boyne Island EEC uses geocaching activities to increase student interest in exploring the island, while learning about the environment, in pursuit of treasure

• Coolum State High School has been taking an active citizenship approach to learning working collaboratively with Maroochy Shire Council investigating the location of a proposed shopping centre, a transport and traffic study, proposed movie studio site and water quality analysis of a local creek

• In Toowoomba, students, scientists and professionals work together to plot new tree planting through Landcare programs. Students synthesize the information and overlay historic data to make assessments of land degradation and use this to develop thesis on how best to improve the area.
• **Kallangur State School** students have been using the ‘Stronghold Deluxe’ software to enhance their medieval unit. They have compared/contrasted medieval society to today’s, designed and built a castle, and simulated attack/defence.

• **Kurwongbah State School’s** ‘X Box trial’ has resulted in year 4/5 students developing the hypothesis that “games could provide them with skills for real life.” Through research and critical literacies, ICTs were used to support or refute predictions and explore rules and collaborative environments.

• **West End State School** students challenged themselves to build a thriving theme park using the ‘Rollercoaster Tycoon’ software. Business management skills were tested using task milestones such as ticket sales profits, and repaying bank loans.

• At **Thursday Island State High School**, Game Making is encouraging students who do not speak English as a first language to be immersed in literacy, ICT and technology.

• **Hendra State High School** teachers use Microsoft flight simulator to teach physics curriculum including the theory of flight and propulsion.
Where is Forsayth State School?
What is the platform today?
Tasmanian context

All students

Student at the Centre

Personalising Learning

Student - Centred

Highly able / gifted students

ICT Infrastructure

Student Freeway
SharePoint workspaces
Forums
Chat
Email
Learning Management System
Communicator
• Self-selected and school / cluster selected school based teachers join program
• Professional learning in 3 spaced workshops provided, to address:
  1. gifted education
     • why is there a need for additional provision for students who are highly able / gifted; nature of identification and provision
  2. online learning
     • including stories and examples from experienced online deliverers
  3. teaching for understanding / refining of programs
• Teachers create a program between workshops with:
  • at the elbow and just in time support
  • technical / graphics assistance.
Implementation strategy - Tasmania

1. Teacher/s self select/ selected from school/ cluster

2. Program developed

3. Program piloted, monitored, evaluated, amended, and reported

4. Program delivered

Student /s - identified need

Classroom

School

Cluster

System / wider
- Ad Astra Junior
- Ad Astra Senior
- ArtyFacts Junior
- ArtyFacts Senior
- GameMaker
- Infinity Squared
- Pegasus
- Socrates Café Book
- Socrates Café Topical
- So Far So Good.
Cluster supported programs - Tasmania

- **Eureka**
  - Primary students with a science interest and ability
- **Image Weaver**
  - Literacy – grades 1-3
- **I want to Know**
  - Information literacy – grades 5-6
- **Kana Cutter**
  - Extension Japanese script sequence – grades 6-10
- **Miro**
  - Thinking, the opportunity to pursue one’s own wonderings – grades 4-6
- **Philosopher’s Pool**
  - Philosophical dialogue/dilemmas – grades 5-8.
• Numberless Daze
  • Numeracy – early childhood

• Science Detective
  • Problem solving using high end equipment simulations - secondary science

• What if ?
  • Creative thinking – grades Prep-2

• Writers’ Unblock
  • Online writers’ workshop – grades 5-8.
Growth Model of Participants 2001 - Tasmania

2001
3 schools
1 program
8 students
Growth Model of Participants 2002- Tasmania

2002
23 schools
2 programs
Growth Model of Participants 2003 - Tasmania

2003
25 schools
2 programs
1 school program
2004
35 schools
2 programs
2 school programs
Growth Model of Participants 2005 - Tasmania

2005
69 schools
6 programs
8 school programs
Growth Model of Participants 2006 - Tasmania

2006
89 schools
10 programs
16 school programs
3 cluster programs
Teaching for Understanding

- Understanding goals – throughlines
- Generative Topic
- Concepts
- Standards
- Sequence of understanding performances
  - Introductory performance
  - Guided / inquiry performance
  - Culminating performance
  - Skills strands
- Ongoing assessments.

The legends of King Arthur

Thinking about Fantasy stories, investigating "archetypal" characters in
- Merlin, the Dark is Rising, Harry Potter etc.

The Lady of Shalott
- Who was she?
- Read her poem and do some artwork
- Thinking about her decision to die

What if King Arthur could visit 2006...

A Comparison of Legendary and Historical Arthur:

<table>
<thead>
<tr>
<th>Legendary Arthur</th>
<th>Historical Arthur</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Wizard Merlin had placed a sword in a stone, saying that whoever drew it out would be king. Arthur pulled the sword from the stone so Merlin made him king.</td>
<td>Arthur was a warrior battling Gothic heroes invading Britain.</td>
</tr>
<tr>
<td>Arthur would never die but would one day return.</td>
<td>Arthurian literature, art, music and medieval society.</td>
</tr>
<tr>
<td>There was a king with a group of knights in shining armor.</td>
<td>Downfall of Arthur's kingdom.</td>
</tr>
</tbody>
</table>
Program outcomes

- 85% teachers strongly agreed/agreed that they had observed an improved engagement in learning by students involved in the program.

- 93% of students (90% boys; 97% girls) believed that working online in Ad Astra helped them to be more responsible for their learning.

- A significant number of students (99% -98% boys; 100% girls) recognised that they were able to work online with others who think like them. This was expanded upon in comments which described the way in which others’ work inspired and challenged them and led to deeper understandings and standard of work.
• 91% commented that Ad Astra challenged their thinking
• 98% of students strongly agreed/agreed that they had learnt a great deal
  • Most students were able to articulate that they had learnt thinking skills, problem solving skills and were able to negotiate their own learning
  • 91% strongly agreed/agreed that they were able to work at their own pace and 100% found the topics interesting
• 91% would choose to do another online extension program
• 90% of teachers strongly agreed/agreed that students’ social interactions had improved, with one teacher commenting on the positive benefit of the online social interaction for two students with Aspergers syndrome
In summary ............Student as the network

community of inquiry model

SOCIAL PRESENCE  
EDUCATIONAL EXPERIENCE  
TEACHING PRESENCE  
COGNITIVE PRESENCE

(Rourke, Anderson, Garrison & Archer, 2001)
community of inquiry model

SOCIAL PRESENCE: NETWORK

EDUCATIONAL EXPERIENCE: SELF, not course!

TEACHING PRESENCE: NETWORK

COGNITIVE PRESENCE: NETWORK

(Rourke, Anderson, Garrison & Archer, 2001)
Student at the centre
Intersection

Venn diagram with the following categories:
- School
- Work
- Home
Personal Learning Environments

- Presenting the student as a network of connections
- Placing the student at the centre of the learning experience
- Learners take control of and manage their own learning
  - set own goals
  - generate and manage both content and process / authoring learning resources
  - connect / communicate with others in the process of learning
- Use tools such as Blogs, Podcasting, Wikispaces, game mods etc to help learners contextualise their own learning
- Need to be developing tools and systems to support immersive learning – e.g. e-portfolios
- Networked technologies creating learning networks; e.g. content syndication networks such as RSS / emphasis on sharing
  - Networks of interactions – syndication
  - Distributed learning environments
  - Moving towards connective knowledge.
NO. YOU MAY NOT OUTSOURCE YOUR HOMEWORK TO INDIA.
Learning becoming integrated with Work

Future models

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Questions?