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Macquarie ICT Innovations Centre
NSW Education & Communities
MACQUARIE UNIVERSITY

CC 21 PROJECT PLAN | Killara High School

Killara HIGH SCHOOL

Prepared by: Alison Gambino

Position: Deputy Principal
Date: 14th May, 2013
Email: alison.gambino@det.nsw.edu.au

Project Team Members

Alison Gambino alison.gambino@det.nsw.edu.au

Shirley Tubb shirley.tubb@det.nsw.edu.au

Simon Borgert Simon.Borgert5@det.nsw.edu.au

Innovation

This project explores the authentic use of technology in teaching the NSW Syllabus for the Australian Curriculum. We will be using current smartphone apps, for example Socrative, exploring the potential for ipad use, mathematical software and games that can be effectively used in the Stage 4 Mathematics classroom, for example mangahigh.com.

Killara High School is currently engaged in a Middle Years Problem Solving Project (through Northern Sydney Region and Australian Mathematics Problem Solving Olympiad (APSMO)) which involves six pairs of teachers (one from Killara HS and one from each of our six primary schools which make up the Killara Schools Partnership (KSP)) team teaching problem solving in both the Primary and High school classrooms. This has provided a focus on problem-based learning pedagogy and in the CC21 project we plan to further explore the ways in which technology can be used to teach how to solve real world problems. The NSW Syllabus for the Australian curriculum focuses on the big idea of Working Mathematically so continuing with a problem-based learning approach is a natural progression.

By the end of this project students will be able to independently use apps and mathematical software to solve real world problems, work collaboratively and communicate their ideas and solutions clearly and effectively. Students address Australian Curriculum general capabilities of ICT, and critical and creative thinking (ACARA, 2013) through the use of ICT to explain their problem solving strategies.

In implementing this project, we also hope to embed in teacher practice a culture of collaborative teaching and reflective practice . The Middle Years Project has provided a starting point for this and we hope to build on this to provide all teachers with the skills and confidence to provide authentic learning experiences for students using technology in Mathematics.

Our experiences in this project are being shared across all Learning Areas at Killara HS through whole school professional learning and opportunities such as Tech Breakfasts.

Sharing this experience across the North Shore Secondary Schools Partnership (NS5) will provide the other schools with both a resource and will enable them to learn from Killara's experience, both in embedding technology and providing professional learning across both primary and secondary schools.

Our Project:

We will be working collaboratively to produce units of work incorporating the authentic use of technology; Killara High School will focus on Mathematics. We will be supported in the implementation of our project by Kathleen Curtis, who is employed by the NS5 to provide educational technology support and advice across the five schools. All members of the project teams in the five schools will be meeting every three weeks to share practice, identify issues and develop our approaches to implementation and improvement to practice.

We are using approximately two-thirds of our funds on teacher relief and professional learning to source software/apps/programs and team teach to trial and reflect on the effectiveness of the technology in enhancing the teaching and learning of mathematics. We will be building on knowledge gained from the Middle Years Problem Solving Project to incorporate technology into our programs. We intend to place emphasis on student-centred and inquiry-based learning, and incorporating the use digital resources. The potential for the use of ipads will be explored during planning days (further building on the use of ipads in the middle years project, for example, the use of "Explain Everything".

We are using the Program Builder tool to construct our program and intend to use the TPACK model as a framework for developing the new program. Assessment FOR learning will monitor learning and provide feedback for teachers about student progress and Assessment AS learning will inform students about their learning.

Rationale:

We need to explore ways of using technology in our teaching that assists students in learning to use ICT to communicate mathematical ideas clearly and effectively both as individuals and in a group, explore mathematics ideas, conduct investigations and find new ways of using technology to solve mathematical problems. We need to find ways of using technology to improve student engagement and promote the understanding of key concepts in mathematics.

At present, ICT is used inconsistently across the faculty. Most teachers are comfortable using Excel, Geogebra and mathletics. Some teachers use YouTube clips and clickview. Students in Year 7 complete ICT4U but Excel is not then being used as a tool for teaching and learning for students beyond year 7 by many teachers.

We will be using approximately two-thirds of our money on teacher release to enable teachers in the mathematics faculty to plan collaboratively and team teach. By employing a teacher to work collaboratively and team teach with the mathematics staff to support the implementation of technology to enhance teaching and learning, we hope to develop skills and confidence in teachers to ensure the provision of authentic contexts for learning. We also hope to develop a culture of sharing of ideas and team teaching.

We are currently also engaged in the Middle Years Problem Solving Project, working collaboratively with our six partner primary schools to collaboratively teach problem solving across stages 3 and 4 and to provide a continuum of learning. We hope to build on this experience by developing students' ability to utilize technology in problem solving and find new ways of solving problems using technology.

Area of Application (Planning, Programming, Teaching, Learning, Assessment)

Planning and Programming: *Our teachers will be working collaboratively to develop the Year 7 program for the NSW Syllabuses for the Australian Curriculum, incorporating the authentic use of technology. Teaching strategies will include the authentic use of ICT to perform mathematical investigations, communicate mathematical ideas clearly and effectively and create ways of using ICT as a problem solving tool.*

Teaching and Learning:

Students will be using ICT to perform mathematical investigations, communicate mathematical ideas clearly and effectively and create ways of using ICT as a problem solving tool.

Assessment:

Students will be engaged in problem solving using ICT. Assessment FOR learning will monitor learning and provide feedback for teachers about student progress and Assessment AS learning will inform students about their learning.

Project Timeline (please include key milestones which are deliverable)

DATE	TASK	Team Member(s) Responsible
Term 2 Week 2	Teachers complete PL in the use of the app Socrative. PL will involve teachers using smartphones and computers to both set and respond to quizzes.	
Term 2 Week 5	Teachers making use of Socrative quizzes in the classroom and giving feedback to inform future use. Deliverable: analysis of feedback received.	
Term 2 Week 9	Analysis of the use of ClassDojo as a classroom management tool. Particularly its effect on student engagement, responsibility and behaviour. Deliverable: analysis of ClassDojo	
Term 3 Week 3	Final evaluation of student-centred technologies to be integrated in the year 7 program. Deliverable: list of technologies and integration plan.	
Term 3 Week 4	Begin implementation and evaluation of student-centred technologies across multiple year 7 classes. Deliverable: weekly updates on the blog.	
Term 3 Week 9	One unit of Year 7 Program for the Australian Curriculum produced with authentic student use of technology integrated wherever possible.	

Proposed Budget

Item	Cost (ex GST)
Teacher relief and professional learning : 20 x $330 = $6600	$6600
Technology	$3500
Total	$10 100