Macquarie ICT Innovations Centre

Food Brain

Proof of Concept 2011

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Macquarie ICT Innovations Centre is a collaboration between the NSW Department of Education and Communities and Macquarie University

About this report

Project team

Project Leader
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Schools involved

Camden Haven Public School
Braidwood Public School
Sherwood Ridge Public School
Kellyville Public School
Kellyville High School
Beaumont Hills Public School

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Executive Summary

About the Centre

The Macquarie ICT Innovations Centre (MacICT) is located at Macquarie University, Sydney, Australia. It is a collaborative agreement between Macquarie University and the NSW Department of Education and Communities (NSWDEC). The centre provides the opportunity for all K-12 schools to access innovative technologies in teaching and learning.

The Centre's focus reflects an innovative project-based approach to working with K-12 teachers and their students. The Centre's core business includes a comprehensive teacher professional learning and support program. MacICT staff, academic research partners from Macquarie University and school teachers collaboratively develop projects that utilise the most innovative, emerging technologies in education.

MacICT is also able to develop and implement small proof of concept projects to evaluate the use of new technologies quickly, providing feedback to our partners about the resource demands of scalability, for example.

MacICT is also able to connect and collaborate with other educational institutions and industry partners to inform the education community and provide significant research knowledge about the capacity of new technologies to enhance student learning.

Mission Statement

'to develop, implement and evaluate innovative ways of enhancing learning through the application of dynamic and emerging information and communication technologies'

To find out more please visit our website at **www.macict.edu.au** and our blog at **http://web2.macquarieict.schools.nsw.edu.au**

Industry Partners

Project Rationale

Students in contemporary classrooms have specific challenges and opportunities that need to be considered when designing learning programs. This project attempts to provide an environment conducive to exploring the new information landscape that confronts students and to provide an opportunity for students to practise 21st century literacy skills.

One of the challenges students face is the increasing use of data in a variety of ways in both print and web-based information. Information is increasingly aggregated in various ways from RSS feeds to data. Students must learn to interpret visual information in the form of game stats, web graphs, polls , complex infographics and even NAPLAN questions.

One of the opportunities of the current information landscape is that students are able to use this very same data to help understand their world and communicate their ideas to an authentic, global audience.

FoodBrain provides a toolkit for understanding and undertaking collaborative projects related to food and food systems. The project engages schools, teachers, students and community members in online communities to share their knowledge and understanding of the problems with food systems to plan action for change.

This 'proof-of-concept' iteration was an opportunity to explore schools' first response to the idea and to allow for acreative development space for the centre to shape future iterations. In this proof-of-concept schools were asked to design their own ways of using data, collaboration, community, technology and immersion to feed an authentic 'food sustainability' project within their school.

The project has five pillars that form the foundation of productive community based education. These are:

- Content that is data rich
- A context that is authentic context
- Social technology that empowers the learner
- Learning that is immersive
- Experts that provide inspiration

Strategic Focus

Project Objectives

The project is designed to facilitate learning across curriculum areas with a high degree of flexibility. The challenging aspect of the project for teachers is to incorporate authentic learning activities, intellectual rigour and project based learning into the learning experience.

Students are encouraged to use technology as a lever to launch them into new areas of understanding and activity. Students are asked to look at technology in the following ways:

- conceptually (for example the creation of an 'infographic')
- practically (for example the use of 'photoshop')
- to achieve a civic goal (for example the use of technology to raise awareness about an issue)

Quality Teaching

During the 'proof-of-concept' phase of this project no formal accreditated training was provided. This was an opportunity to explore the benefits of this approach and to provide tailored professional learning experiences to help teachers achieve their outcomes.

Whilst formal accreditation wasn't undertaken the training did adhere to the teaching standards. There was an emphasis on attention to Elements 1, 3, 6 and 7. These elements state:

> **Element 1:** Teachers know their subject content and how to teach that content to their students
>
> **Element 3:** Teachers plan, assess and report for effective learning
>
> **Element 6:** Teachers continually improve their professional knowledge and practice
>
> **Element 7:** Teachers are actively engaged members of their profession and the wider community

There was also an emphasis on having teachers participate in collaborative online forums eg in Edmodo as part of their critical reflective practice. This strategy aims to increase:

- the development of collegial networks
- critical reflection on pedagogical practices; and
- sharing of ideas, resources and skills.

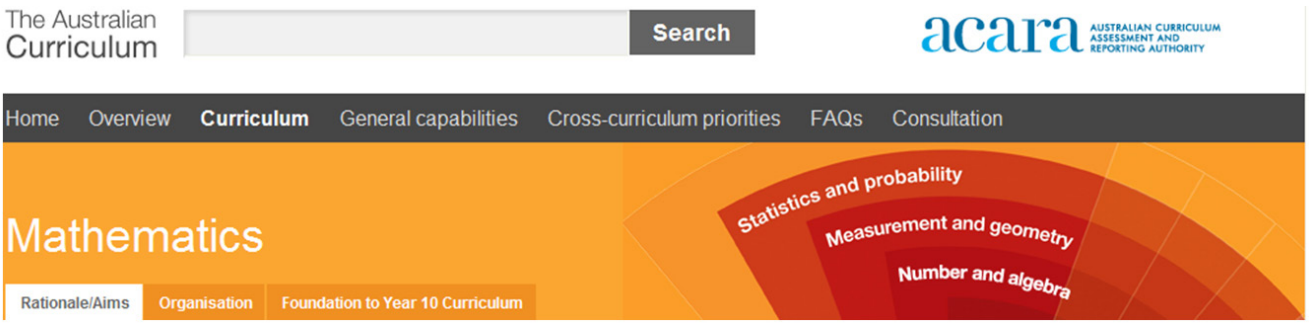
Curriculum Links

The FoodBrain project, through it's five pillars, encouraged students to become active contributors to society through sharing their intellectual capital, linked to authentic community action programs where possible. Students within the project are asked to delve deeply into finding the facts behind the problems around food sustainability and propose solutions.

The project provided an excellent framework for addressing many curriculum outcomes, particularly those discussed in the ACARA National Curriculum. These outcomes are in key learning areas such as English, Maths and Science but the project also addresses cross-curricula perspectives (eg sustainability) as well as developing students general capabilities in the areas of critical and creative thinking, ICT, ethical behaviour and personal and social competence.

Civics and Citizenship (National Assessment Program, Civics and Citizenship Years 6 and 10 Report, 2010)
In 2010 a review of students understanding and proficiency relating to Civics and Citizenship was conducted. The review tested students' knowledge, understandings and attitudes related to aspects of Civics and Citizenship such as:

- Civics and citizenship content
- Cognitive process for understanding civics and citizenship
- Affective processes for civics and citizenship
- Civic and citizenship participation



These aspects are drawn from the 'Melbourne Declaration on Educational Goals for Young Australians (2008). This document makes reference to supporting students to 'participate in Australia's civic life' and to become 'responsible global and local citizens' (National Assessment Program, Civics and Citizenship Years 6 and 10 Report, 2010, weblink, pg1).

In the lastest National Assessment of Civics and Citizenship 2010 half the students in each Year level (6 & 10) did not achieve the level of proficiency in the assessment. This demonstrates the need for educational programs to provide students with opportunities that engage students in authentic action.

The project based nature of the FoodBrain combined with the community and data representation and analysis aspects of the design enable opportunities for explicit teaching of civics and citizenship particularly in the areas of cognitive processes, affective processes and participation processes.

National Curriculum – English, Mathematics, Science
The National Curriculum recognises that there is a link between visual, data and linguistic information. It gives weight to the links between all cirriculum areas and the importance of using skills of creativity, critical thinking, personal and social competence and ethics.

The Science, Mathematics and English curricula all refer to the importance of data. Students should be capable of both representing and interpreting data using a range of digital technologies. . The construction of visual displays is also considered linked to critical and creative thinking. http://www.australiancurriculum.edu.au/Mathematics/Curriculum/F-10

The National Curriculum also recognises the links between Mathematics, Science and English 'The study of English involves the development of understanding and knowledge for informed and effective participation not only in English but also in other learning areas. When knowledge, skills and comprehension from English are meaningfully applied to other learning areas, learning becomes more relevant and understanding deepens.' http://www.australiancurriculum.edu.au/Mathematics/General-capabilities#Literacy

FoodBrain provides an opportunity for students to use their maths, science and english capabilities in the context of work that is linked to helping them understand and change the world they live in.

Ethical Behaviour (http://www.australiancurriculum.edu.au/GeneralCapabilities/Ethical-behaviour)
"Students develop ethical behaviour as they learn to understand and act in accordance with ethical principles. This includes understanding the role of ethical principles, values and virtues in human life; acting with moral integrity; acting with regard for others, and having a desire and capacity to work for the common good." (From the general capability statement)

"There are opportunities in the mathematics curriculum to develop and apply ethical behaviour in a range of contexts; for example, in the selection and interpretation of data and statistics for different purposes." (http://www.australiancurriculum.edu.au/Mathematics/General-capabilities#Ethical-behaviour)

Through the use and interpetation of data, students in the FoodBrain project are encouraged to think about the ethics of mathematics.

Students from Camden Haven consult with experts from Oxfam in the field to understand how they can become leaders in change for good.

Sustainability & English (http://www.australiancurriculum.edu.au/English/Cross-Curriculum-Priorities#Sustainability)
'The Australian Curriculum: English provides students with the skills required to investigate and understand issues of environmental and social sustainability; communicate information about sustainability, and advocate action to improve sustainability.' (From the cross-curriculum priority statement.)

A core aspect of FoodBrain is that students use their knowledge and research skills to advocate for improvement in their society. This is a skill that is extremely useful in the contemporary workplace.

Activities

As part of the FoodBrain proof-of-concept this year a number of discussions and planning meetings occured which informed the creation of 3 micro-pilot activiites. In 2011 we ran 3 activities across 6 schools with 32 teachers and 672 student participating in these activities.

ACTIVITY	SCHOOLS	TEACHERS	STUDENTS
Food for Thought	1	1	40
Visual Numeracy	4	23	572
Cross Cultural Exchange	2	5	60

All activities drew from the five project pillars and involved investigations into food sustainability. The activities included:

- Visual numeracy professional learning (Kellyville Community of Schools)
- Food for Thought Immersion excursion (Camden Haven High School)
- Cross-Cultural Exchange (TARA.Ed)

Each group choose to engage with the concept in very different ways. Each project gave us an opportunity to explore the use of technology in context and how to best utilise the affordances of different technologies to empower the learner.

Visual Numeracy

see Appendix C for full details

A tailored professional learning project was delivered to the Kellyville Community of Schools in Semester 2 of 2011. For this project the Macquarie ICT Innovations Centre provided consultative and training services to 23 teachers across 4 schools.

Through NAPLAN analysis the community of schools identified 'visual numeracy' as an area for improvement. Through observation, interviews and discussions with school leaders a professional learning plan around the concept of 'infographics' was proposed and implemented.

The project involved students telling stories with data using 'infographics'. Year 5-10 students were asked to delve into the numbers behind food and food sustainability to understand the issue deeply. The students sourced, reviewed and synthesised data from a variety of sources and created movies to demonstrate their learning.

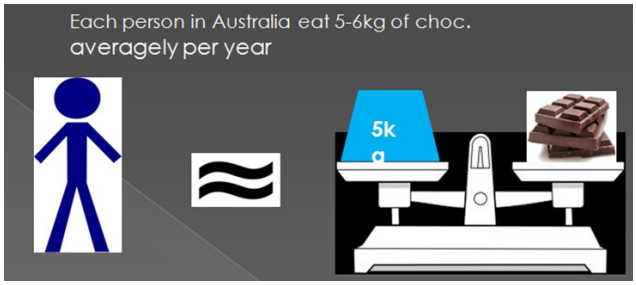


Fig 1. Students in Year 5 from the Kellyville Hub used SMART Notebook software and Powerpoint to create animated graphics that explain data.

Immersion Excursion Model

see Appendix D for full details

Camden Haven High School and Macquarie ICT Innovations Centre worked together to create 'Food for Thought' an opportunity for 40 Year 8 gifted and talented students to investigate issues of food sustainability and design a real-life, local solution to an issue relevant to them and win a $1000 grant to implement their idea within their school.

A key aspect of the project involved students participating in an intensive 3-day workshop in Sydney to develop their thinking and ideas. The students worked on their idea throughout the 3-day workshop which involved visiting a number of partner organisations including: The Botanical Gardens Education Centre where they developed their knowledge of bush foods, pollination and sustainable use of land; Taronga Park Zoo where students develop their understanding of sustainable animal husbandry; Oxfam Australia where students learnt about activism and the impact of world food consumption; Sarah James from Macquarie University explained the key local and global food sustainability issues.

The project provided a very innovative, immersive project designed to students to think deeply about the choices they make and how they impact on their future, the local community and the world around them.

Fig 2. Students investigate issues surrounding food sustainability at the Botanical Gardens.

Cross-cultural Experience

see Appendix E for full details

This was a very small micropilot where students from the Rosary English School in India and Braidwood Central School used social learning tools to connect on a common topic. This joint project involved "middle school" students in India and Australia, and pre-service teachers as part of the Tara.Ed Teacher Tour, 2011.

This blog showcased the connections made between the Australian and Indian students. It gave the students opportunities to learn about how food is used in different countries and complete practical activities such as cooking and video making.

Poha is a beaten rice dish that we eat for breakfast

Egg Bhurji is an Indian version of scrambled eggs

Idli is a steamed rice pudding. It tastes of nothing, so needs to be eaten with chutney

Dosa is a flat rice pancake. It is eaten with sambar and chutney

Fig 3. Primary school students in India blog about their food choices. http://foodbrain.edublogs.org/

Feedback

"I loved being part of this and I hope when I move to my new school next year I will incorporate some of what I learnt into some learning programs." - Sarah, Teacher, Sherwood Ridge

The topic of food sustainability was good because the student were guided by their own interest in food

Teachers from Kellyville Community of Schools commented that more students were receiving higher results in the data strand in their reporting. Some teachers noted that students in the lower end of the class were achieving and engaged.

Teachers from the Kellyville Community of Schools commented that the students went beyond the data strand of maths eg locating countries on latitude to see the difference in work standards or chocolate production.

Schools such as Beaumont Hills indicated that a more formal exploration of the National Curriculum should be considered for future projects with their school/community of schools. *"The depth of the students learning understanding started to emerge on the third day in the MacICT centre as they applied their knoweledge to develop original local solutions to food sustainability in the form of a persuasive proposal at the MacICT centre."* Teacher, Camden Haven High School

'The kids see that data could be misrepresented. When asked what they learnt about maths. Students responded that 'big business can manipulate numbers easily'.'

Teacher, Sherwood Ridge

'Teachers frequenctly commented on how the students were learning at an increasing reate and were benefitting from the sole focus on one embracing topic.'

Executive, Camden Haven High School

'Anecodotal evidence from parents is that students who previously felt apathetic toward school and community involvement felt passionately that they wanted to 'do something' and had expressed interest in university courses as a result of the immersion excursion '

Executive, Camden Haven High School

'The depth of the students learning understanding started to emerge on the third day in the MacICT centre as they applied their knoweledge to develop original local solutions to food sustainability in the form of a persausive proposal at the MacICT centre.'

Teacher, Camden Haven High School

Teachers from the Kellyville Community of Schools and Camden Haven commented that the students have a deep understanding of the facts behind the issues eg they can quote statistical information from their investigations and they are also using this to inform their own decisions about food eg avoiding flavoured chips or eating fairtrade chocolate, they are also putting social pressure on each other to make good choices

They students liked using Edmodo. Some teachers commented that the platform for sharing ideas enable students of all abilities to contribute more to the group and learn concepts faster.

Students were so deeply engaged they wanted to do more work after school or at lunch time.

"The excursion provided a valuable opportunity to model high order teaching strategies in an environment without constraints." - Executive, Camden Haven

"Systematically the school has endorsed this learning activity for the following year…. Motivating student in Stage 4; providing an example of an innovative project for GATS strategies in our local community of schools… and providing an example of how to integrate technology into quality learning experiences."

"Indian students took more than just the learning outcomes away – they were able to use internet technologies for the first time to interact with others." - Jen Purcell, TARA.ed

"Food as a topic proved to be very interesting – there were many ways in which it could be shaped to fit the curriculum and various subjects." - Jen Purcell, TARA.ed

"All staff stated that from both sessions at the ICT centre they learned something new in the availability and application of technology that they could apply to their students' learning" Heather Thomas, Beaumont Hills

Results

Content that is data rich

The Visual Numeracy PL and Immersion Excursion both incoporated an element of explicit teaching of data literacy and this resulted in increased critical literacy around data intepretation in everyday text.

Teachers in the Visual Numeracy and Immersion Excursion activities identified the importance of teaching reading at an inferential level of comprehension in text as well as using mathematical language and multi-step problems. This needs to be extended in future iterations of the project.

Assessment of learning in the proof-of-concept projects proved to be difficult and further research needs to be conducted into the appropriate means of assessing. Teachers need a collaborative resources base of assessment strategies for this type of learning as a one size fits all approach isn't always adequate.

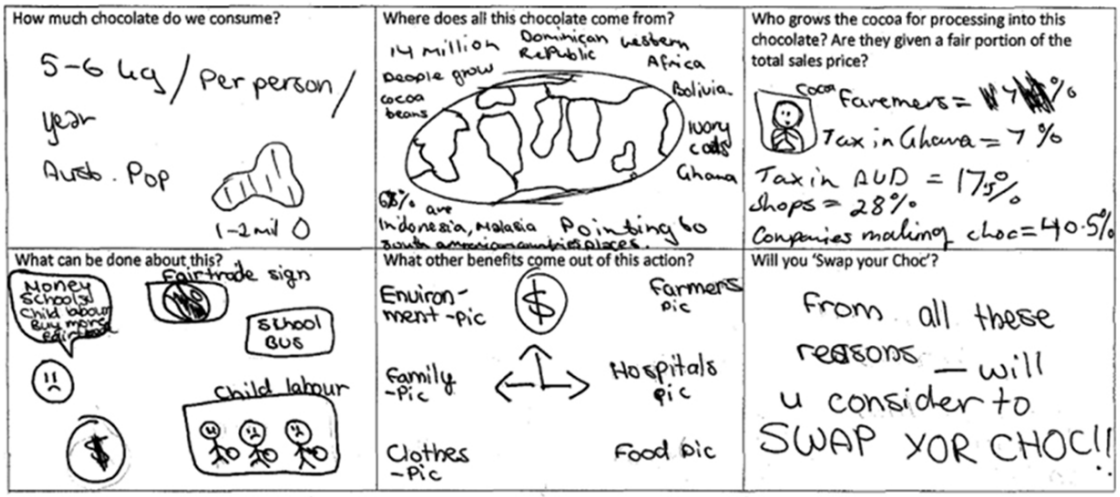


Fig 4. INFOGRAPHIC STORYBOARD: Students storyboard their concept for a video that tells the story behind the numbers.

A context that is authentic
Some teachers found it easy to find space in the curriculum to work on developing shared knowledge and found that this increased the engagement of students in the project.

The cross-cultural project evolved very naturally with the teachers needing only a small amount of consultation to connect, moving these students into a higher level of analysis in their interaction could prove difficult without a longer time frame.

Social technology that empowers the learner
Students were able to access rich data from the web and use this in authentic ways to achieve real results.

Using social technology empowered students to lead the learning through sharing content, commenting on each others work and communicating with students across the globe.

Access to computers can be an issue for projects that heavily incorporate technology use.

Learning that is immersive
Teachers found that when students were immersed in learning they found it easier to talk about their learning. Student were able to speak fluently on topics they had been researching. They were also able to apply their knowledge to practical activities.

Many students in both the Visual Numeracy PL and Immersion Excursion changed their behaviour as a result in participation in the project and even put pressure on friends and family – these students were able to argue using facts and data that they had critically analysed

Experts that provide inspiration
Expert advice has been a key theme of the FoodBrain proof-of-concept outside experts such Sarah James (Science Faculty MQ), Oxfam Australia and the University of Canberra have provided input into the structure of the activities as well as directly advising students. This provided authentic, up-to-date information on pedagogical approaches as well as content issues.

Conclusions

FoodBrain provided an opportunity for a number of small activities to be conducted as a proof-of-concept for an ongoing larger collaborative project.

- Children were guided by their own interest in food, this helped them stay engaged.
- Many students carried their knowledge into the playground, home and across subjects.
- Working together within a shared authentic context worked well as teachers were able to look at similar teaching practices from a different perspective.
- Multi-day immersion experiences involving a number of experts in the fields provided students with the foundation for building an impressive understanding of the concepts covered. However there was still a tendency to provide the students with many listening sessions.Further exploration of how to incorporate more hands on practical activities throughout the time is important.
- Social learning tools supported collaboration within classrooms and across schools. However for larger scale collaboration especially across schools a better web solution or an extension of our Edmodo use is required.
- A focus on data provided students with critical understanding they carried into the literacy tasks or into the practical activities. Intial investigations into this area provide us with useful data, however deeper analysis into the practicalities of how students learn data analysis and representation is required.

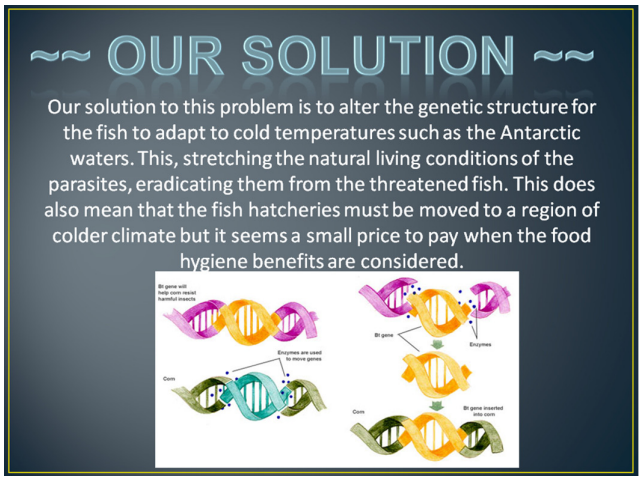
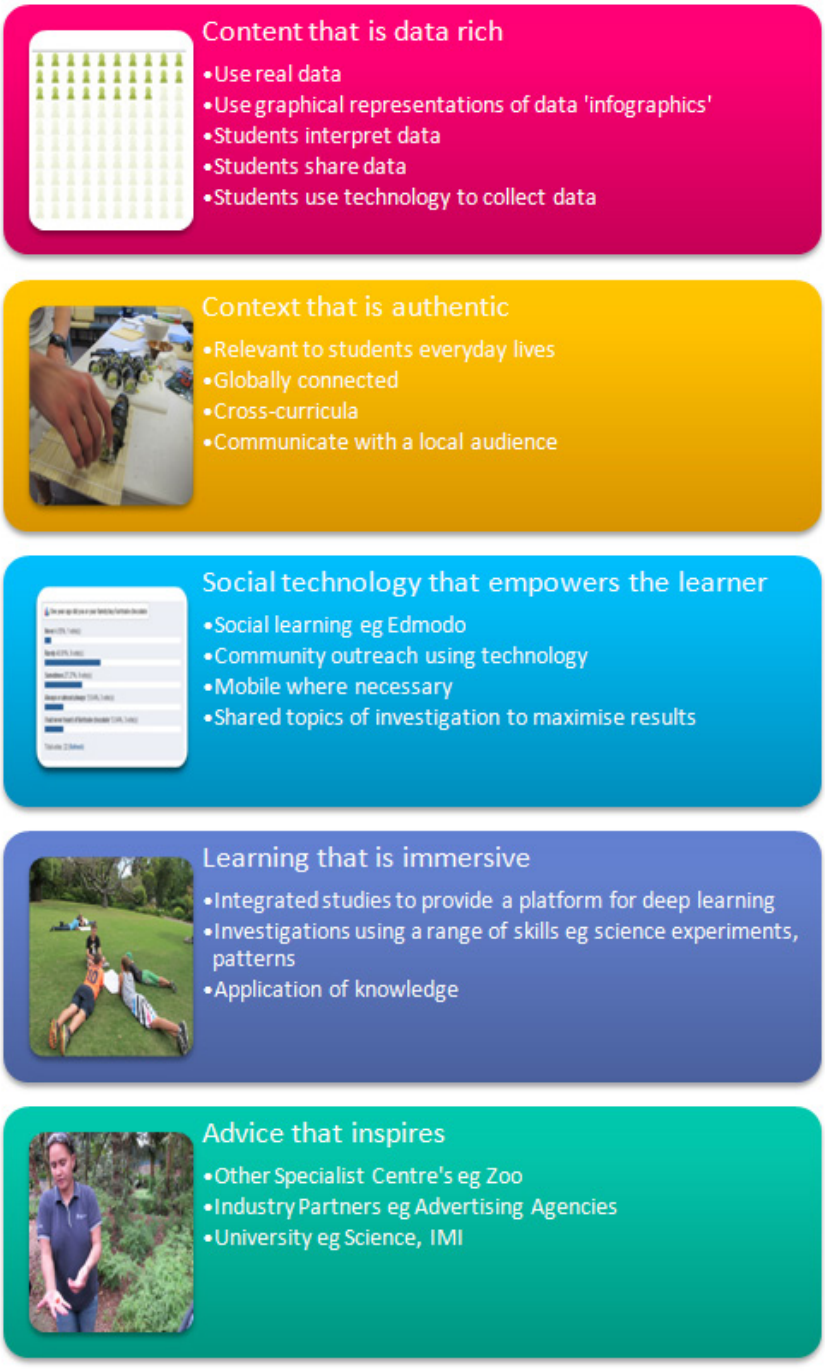


Fig 5. Sample of student work from the Year 8 Camden Haven Immersion Excursion.

Potential for Development

From this proof of concept we were able to test the project pillars. Each project used at least two elements of the pillars and received benefits. The next stage of testing would be to work within projects that incorporate 4 or more pillars. Each pillar is strong on it's own but together they provide a framework for building learning programs that transform learning.

This graphic provides more detail in terms of implementation of the pillars within future projects:



Appendix A: Curriculum Links Additional Information

Mathematics (From ACARA)

The skills taught in English of communicating with others, comprehending texts, making connections within and across texts and creating new texts reinforce learning in mathematics. When reading texts, students develop an understanding of concepts such as time, number and space. They interpret numerical symbols and combine these with pictures to make meaning. When creating and responding to texts, students draw on an understanding of spatial features. Understanding statistical reasoning, graphical representations, quantitative data and numerical scale and proportion is an invaluable skill for analysing argument in English. Being able to present quantitative evidence as part of an argument is a persuasive tool. Deriving quantitative and spatial information can also be an important aspect of understanding a range of texts.

Science (From ACARA)

The skills of communicating with others, problem solving, comprehending and using texts and creating new texts reinforce learning in science. In English, as in science, students base their discussions on the objective analysis of evidence, justifying points of view, drawing conclusions and making presentations in a variety of media. The abilities to plan investigations; think objectively about evidence; analyse data; describe objects and events; interpret descriptions; read and give instructions; explain ideas to others; write clear reports and recommendations; and participate in group discussions are all important in both disciplines.

Related Content Descriptions

Maths

Mathematics / Year 5 / Statistics and Probability / Data representation and interpretation

Content description	Elaborations
Construct displays, including column graphs, dot plots and tables, appropriate for data type, with and without the use of digital technologies	• identifying the best methods of presenting data to illustrate the results of investigations and justifying the choice of representations

Code

ACMSP119

ScOT catalogue terms

Data representation

URL

http://www.australiancurriculum.edu.au/Elements/ACMSP119

General capabilities

- Literacy
- Information and communication technology competence
- Critical and creative thinking
- Numeracy

English

English / Year 6 / Language / Expressing and developing ideas

Content description	Elaborations
Identify and explain how analytical images like figures, tables, diagrams, maps and graphs contribute to our understanding of verbal information in factual and persuasive texts	• observing how sequential events can be represented visually by a series of images, including comic strips, timelines, photo stories, procedure diagrams and flowcharts, life-cycle diagrams, and the flow of images in picture books • observing how concepts, information and relationships can be represented visually through such images as tables, maps, graphs, diagrams, and icons

Code
ACELA1524

ScOT catalogue terms

General capabilities
Literacy
Numeracy

Modes
W Writing
R Reading

Science

Science / Year 6 / Science Inquiry Skills / Processing and analysing data and information

Content description	Elaborations
Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate	• exploring how different representations can be used to show different aspects of relationships, processes or trends • using digital technologies to construct representations, including dynamic representations

Code
ACSIS107

ScOT catalogue terms
Tables (Data); Data representation; Patterns

General capabilities
Information and communication technology competence
Numeracy

Science / Year 6 / Science Inquiry Skills / Communicating

Content description	Elaborations
Communicate ideas, explanations and processes in a variety of ways, including multi-modal texts	• discussing the best way to communicate science ideas and what should be considered when planning a text • using a variety of communication modes, such as reports, explanations, arguments, debates and procedural accounts, to communicate science ideas • using labelled diagrams, including cross-sectional representations, to communicate ideas and processes within multi-modal texts

Code
ACSIS110

ScOT catalogue terms
Data representation; Communication skills; Observations (Data)

URL

General capabilities
Literacy
Information and communication technology competence
Numeracy

Current NSW Literacy Curriculum

- demonstrate how visual texts contribute to meaning, eg tables, charts and diagrams
- work with a variety of forms, eg projects, letters, diagrams, posters, multimedia
- In written texts, meaning is also contained in visual elements such as graphs, maps, photographs, grids, diagrams, drawings and labels.

Current NSW Mathematics Curriculum

- Students develop, select and use a range of strategies, including the selection and use of appropriate technology, to explore and solve problems
- Collects statistical data using either a census or a sample, and analyses data using measures of location and range

Appendix B: Links to MacICT Strategic Plan

Strategic Plan Objectives	Project Action
Professional Learning	
2.4 An increased focus on middle years students in Centre projects	Where feasible, design of courses and projects will facilitate the teaching and learning for middle years students.
Partnerships and Research Links	
3.1 Increased industry partnerships	Where appropriate, industry partners are used as a resource in courses and/or projects.
3.3 Extend the current reach of the Centre, ideally across the State and possibly globally.	A number of courses are designed to be able to be delivered online to schools in regions other than NSR. Teacher accessibility to resources will also be increased as part of project participation through the use of video conferencing, blogs, online forums and use of social networking tools such as Edmodo. MacICT professional learning opportunities are promoted state-wide through SchoolBiz.
3.5 Partnership collaboration will inform direction of projects and professional learning	The development of projects and professional learning opportunities will continue to be informed by participating partners as exemplified in the VW Project where partnerships with well-known architects and Sydney College of The Arts are invaluable.
3.6 Partnerships will include international research collaborations and linkages	Professional learning opportunities will be supported by the development of international research and industry links. A highlight of 2011 has already been the presentation by Professor Stephen Heppell to over 70 DEC teachers, MQ academics and students.
Research Projects	
4.1 Focus on risk taking innovation to explore and explain pedagogical opportunities and to research pedagogical practices in specific disciplines	Professional learning opportunities continue to encourage a creative, innovative and reflective approach to pedagogical practices.

Appendix C: Links to North Sydney Region Plan

NSR	Project
Regional Targets	Differentiated Learning Programs Improve access to differentiated curriculum for all students; Improve the quality of teachers.
Delivery strategies	Early / Middle/Later Years: Professional Learning opportunities Workshops based on skill and knowledge acquisition and application to classroom learning, across all KLAs delivered face-to-face, online and /or video conference; Deeper participation in MacICT projects (supported by workshops, video conference information and support sessions);
Assessment and evaluation strategies	Survey Monkey and/ or My PL@DET student and teacher evaluations; Regular Edmodo and/ or blog student and teacher reflections throughout project; Student work-samples; Showcase at conclusion of project.
Regional outcomes	All students access learning technologies; Teachers adopt student-centred approaches to teaching and learning; Students engage in authentic student-centred learning;
Regional indicators	A variety of learning technologies are embedded into student-centred teaching and learning activities;

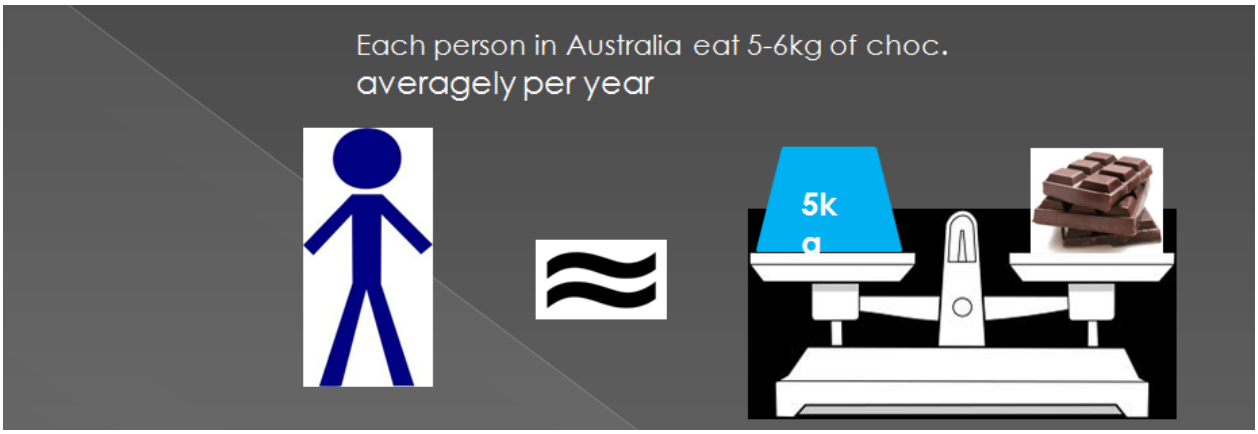
Appendix D: Visual Numeracy Full Report

Description

A tailored professional learning project was delivered to the Kellyville Community of Schools in Semester 2 of 2011. For this project the Macquarie ICT Innovations Centre provided consultative and training services to 23 teachers across 4 schools.

Through NAPLAN analysis the community of schools identified 'visual numeracy' as a an area for improvement. Through observation, interviews and discussions with school leaders a professional learning plan was proposed and implemented.

The project involved students telling stories with data using 'infographics'. Year 5-10 students were asked to delve into the numbers behind food and food sustainability to understand the issue deeply. The students sourced, reviewed and synthesised data from a variety of sources and created movies to demonstrate their learning.



In creating their infographics the students used visual elements such as colour coding, pictures, graphics and icons, analytical content such as statistics, timeframes and references and knowledge such as facts and deductions. (http://spyrestudios.com/the-anatomy-of-an-infographic-5-steps-to-create-a-powerful-visual/)

The professional learning package delivered included:

- Advice on implementing a project based learning approach
- Training and advice on creating 'infographics' as a way of teaching students to understand and interpret visual information
- Ongoing consultation on how to implement the strategy in the classroom
- Showcase of work completed by students

Feedback

This feedback was collated during the teacher only showcase workshop at the end of the project.

Student Learning

Teachers comments included:

- Children were guided by their own interest in food, this helped them stay engaged
- Some children had trouble with the concepts and 'hand feeding suggestions'* was necessary (*structured modelled of approaches)
- The project allowed them to use their imagination
- Some classes found storyboarding was a good way to organise their thoughts
- The students thought about the message that they want to get out to their audience
- Need to include bibliography next time
- Middle* kids could work. Coming up to the teachers at lunchtime to work on their presentations. (*average ability)
- Time was a factor - at least 2-3 hours per week for 5 weeks
- The project pushed the boundaries of the curriculum - we didn't look at the project as only maths, it was also talking and listening but some things did get ignored
- It's about an integrated approach - and the care factor
- The students developed skills in making judgements for example that Wikipedia is not necessarily true
- It was real-life stuff, they had vested interest and emotion
- Such immersion in the concept of food sustainability
- The students are really proud of what they produced
- The kids are now going home to educate their parents
- Went to the website the students identified that Kellogg's highlighted distracting information about the nutritional value of their food
- The students found that we don't have data for Australian standards on nutrional information about food
- The students were very engaged in the processes but they didn't always get the data part, and then again sometimes they really did get the data part
- The students have a deep understanding of the issues and they are putting social pressure on each other now to change their behaviour - eg kids are now trying to avoid flavored chips, non fairtrade chocolate
- They students also noticed differences in the recommended food for adults, kids, increased awareness

Technology

- Some students prefered to use Word Smart Art to map the process as it was easier than the SMART Notebook software
- Students found and shared content to improve their collective knowledge eg YouTube video on the impact of fair trade chocolate
- Glogster is a bit limited

- They liked commenting on each others work - Edmodo Sharing work they learn from each other and they get inspired If the teacher is commenting that increased
- Using Edmodo helped them by giving teachers the opportunity teach students to be good digital citizens for example choosing language that's appropriate
- "please can I go into the computer club I really want to do this"
- Did the maths in Excel - took screenshots
- The students used graphs found on the Internet

Mathematics

- The students noticed they could manipulate the data to suit them for example by talking about things in percentages instead and reversing the numbers
- As part of their research the students went beyond the mathematics strand they were looking at and for example located countries on latitude to see the difference in work standards, chocolate production, they found commonalities or some students looked at hectares to determine how much land it takes to grow cocoa
- Students used the data to make recommendations and they looked at data critically
- Fair trade chocolate was used as a springboard for lots of maths lessons
- They students found it diffuclt to compare products for example price and size but they problem solved and eventualy came up with ways to use the data to make info graphs
- Teachers had to keep bringing the students back from the social to the mathematics
- The kids did see that data could be misrepresented. When asked what you have learnt about maths? Students responded that 'big business can manipulate numbers more easily.'
- Some students need a modelled structure, class survey

Teaching practice

- Teachers' passions really came through
- Many teachers found that the topic of 'food sustainability' was good because it allowed them to see how to teach the same thing in different ways
- Next time they should be given more flexibility to teach the same in a different way
- One school Kellyville Primary school is implementing the project with Lane Clark program which is about students spending spending a good portion of our day on the one integrated, cross-curricula project

Assessment

- Assessment - hard to assess, if we do it again it will be better, we'll be better prepared, hard to allocate a mark, not in isolation, show them the rubric, student to self assess
- Inforgraphic workshop - deconstruct an existing infographic, they like to self assess but they don't know how to do it, constantly reviewing
- Assessment rubric - we would need to do this again to see a real assessment - peer assessment and anecdotal
- Rubric was cross curricula

- Did the activity change their mathematics? Anecdotally teachers commented that more students were receiving higher results in the data strand in their reporting. The lower end of the class were elevated. Other teachers commented that the higher students were extended.

The support of the ICT in the ESiM Maths project (a 3 year project for stage 3 and 4 teachers) that focussed on improving student understanding of mathematics. The ICT centre provided the professional learning opportunities for 18 teachers across 3 primary schools and one high school that assisted teachers in developing their understanding and use of Web2 tools to asses student's deep understanding of visual numeracy through the creation of an infographic using data analysis.

Findings

Overall this was a highly sucessful project with most teachers completing the task in class and reporting satisfactory results. The teachers were able to look at the variety of ways data is presented visually in our everyday lives and change their teaching practice to help students understand the value of data. The community of schools should continue this work with a focus on:

- The assessment element should be reviewed, which elements are most important to assess using the rubric and how should this be reported on
- Any strand of mathematics - patterns and algebra, space and geometry - incidentally using number
- Reading - inferential level of comprehension in text include mathematical language and multi step problems
- Implementing a supported, cross–curricula approach where students are immersed in project based work to cover integrated learning for all KLAs is conducive to working on this type of authentic, data rich activity
- More flexibility was required to ensure teachers had the flexibility to opt out of the collaborative 'food sustainabilty' idea
- Whilst many of the teachers felt collaboration around a common topic that was of interest to the students, future projects should carefully consider how the needs of all teachers and curriculum relevant content can be included
- Everyday classroom focus on multimodal text, peer sharing and reflection across schools is important
- Edmodo should be incorporated to encourage peer learning and collegial sharing

Future project ideas

A potential plan for a second iteration of this project could include:

Step 1 - Skill build

- Deconstruction of a graphic design
- Create something Napaln like for their peer- explanation of how to solve
- Make a video to demonstrate how to solve the problem

Step 2 – Experts

- Get a designer to come in and talk to them about constructing graphics
- Get a literacy expert to talk about the construction of texts like the census Infographic

Step 3 - Application

- Work on a community based collaborative project
- Apply the skills and knowledge to communicate about a real life issue - sharing across the school

Step 4 – Assessment and evaluation

- Collaborate across schools to compare teaching strategies and assessement results
- Evaluate the project

Additional Worksamples and Reflections

Reflection by Principal

Outcomes for students:

Students and staff explored how to present the analysis of data in a way not previously explored and in using Web2 tools that had not been used before. Students' depth of understanding was demonstrated through the creation of their infograph.

- Engagement in the task was very high.
- Students enjoyed using Edmodo to share their learning.

Benefits for staff learning as part of a hub group:

- Sharing of student work samples and the journey of their own learning along with their students provided reflective dialogue regarding the strengths and weaknesses in completing this project.
- An integrated approach by staff was facilitated and recorded in rubric form, outlining the knowledge and skills related to data, the working mathematically strategies used and technology skills employed by students.
- Sharing of rubric design and criteria allowed staff across schools to critically discuss and reflect current forms of assessment and implications for student self assessment.
- Staff were introduced to Edmodo as a forum for educational discussion with their students.
- Comparisons of learning journeys could be discussed within the framework of one topic across schools- food.
- Different schools approached the tasks in different ways. Sharing across schools of these approaches was educationally powerful.
- All staff stated that from both sessions at the ICT centre they learned something new in the availability and application of technology that they could apply to their students' learning.
- Visits to staff by ICT personnel provided personal support and opportunity to discuss issues encountered throughout the project.

Challenges:

- Time constraints and availability of technology at the school level was problematic.
- The topic of foods chosen did not readily reflect plans at some individual schools.
- Existing high school structure and timetable created logistical challenges for staff to complete the task.
- Monitoring staff across 4 schools to ensure that all requirements of the project were met eg. uploading info graphs to Edmodo.

Would need to meet with other schools but suggestions I would like to explore could be a project :

Through the use game of design examine the effects on student engagement and their demonstrated depth of understanding of knowledge, skills and concepts taught. (Have been previously involved with the Kahootz project and game design) Would like to build on this.

Could use the model of the infograph community based project with a focus on game design ieAgree on a common topic and explore game techniques as an integral component of the assessment.

Reflection by Teacher Year 5

Authentic Context

My students came up with a bunch of suggestions for possible topics. Eg. Poverty, droughts, fairtrade coffee, war, multi-culturalism.

The class voted and we changed our topic from Fairtrade coffee to fairtrade chocolate since this was something the kids consumed.

The fact that this issue related to them (they eat and like chocolate) and that the people being affected by our decisions in Australia were children, I believe, motivated the kids to find out more.

The authenticity of the issue meant that there was plenty of on-line information, data, websites (on chocolate and chocolate companies), Youtube videos on slave labour etc. It was also a current issue. We could see the graph of fair trade chocolate sales over the last 10 years. It was dramatic in the significant change that had taken place even in the 5 years of their schooling.

Real Data

Real data meant that we had a real opportunity to read real graphs and face real challenges of interpreting the data. Often in text books numbers are easily divisible by a multiple of 3 or 5 and you can always read how big the smallest value is from a graph. This isn't always so in real graphs.

Real data meant that discussion took place on definitions and the importance to be specific – were the kids finding out the percentage of child slaves around the world, in Africa or on cocoa farms in Africa. What was the definition of a child – under 16, under 15 etc. It meant taking a look at dates of the information gathered because data changes over time.

I think children learnt so much more from this about interpreting data than could be possible by graphing say favourite sports in Year 5 etc.

There is still a place for made up graphs to teach the basic elements still.

I think asking children to think of ways to visually represent the information/data in an infographic also challenged them on how to represent the information accurately. Were they estimating their pictures or showing exactly.

Another teacher noted that the Data results when we did traditional assessments were way better than in any of our other assessments. I looked carefully at my class and I would overwhelmingly agree.

The kids have taken a more ethical approach to buying chocolate as a result of viewing real data.

Visual Numeracy

We certainly saw lots of examples of graphs, tables, percentages etc. I think the exposure to such a range of representations of data (not just on chocolate but also in the infographic examples we showed to them) would have to help their skills improve.

Edmodo

The children loved communicating on-line. I enjoyed seeing them motivated and learning and would definitely wish to do something like this again.

I think cooperatively sharing resources was excellent for the kids who find researching difficult.

I think that one of my quietest and most shy students, who rarely contributes to class discussions or initiates conversations, managed to share some resources on-line and was rewarded with thanks and praise by her "popular" peers.

I think that the kids who are not allowed to have a facebook page felt like they were enjoying some of the benefits even though their on-line communication was just on the topic of chocolate.

I think it was an excellent opportunity to teach "appropriate" communication on-line

Did Macquarie ICT add any value to the experience?

Absolutely yes. I'm not sure how much extra I learnt in terms of how to create a movie or powerpoint animation or even notebook animations and page recordings (it helped my colleagues) but to be introduced to infographics in a way that I could recognise as an infographic was eye-opening. It was the hardest thing to convey to my students, but once we started with a few kids creating real infographics and not just copying a graph from the internet or creating a graph in Excel then the kids started to get more creative.

Your visit before the actually visit to the ICT Centre helped me understand the nature of the "sustainability" idea and the need for assessment criteria and direction.

What would I do differently?

I would have more computers in my classroom!

I would (because we are time poor) choose a topic that we were actually doing in HSIE (Global Connections or rainforests) or Science (communications, light) or even a topic related to a literature unit that could be developed into a project (eg. The Holocaust and the book Once by Morris Gleitzman).

I would start this earlier in the year.

I would start with a very small topic to create one “clever” graph. Then move onto the whole story being told in an authentic project. I think there were a lot of skills, information, etc to take on in a short period and my points above concerning what the infographic/data is actually saying may not have been detailed in the kids work – they may just have had a graph showing 30% but not outlining exactly what the 30% was referring to. So learning to do this with inforgraphs before attempting the big project would be beneficial

What could MacICT do differently?

Visit the school to demo some things – sometimes an “expert” talking to the kids and showing them stuff is more convincing than the teacher.

Monitoring the project as it progressed. I found that only a couple of us (teachers)got the idea of “infographic”. They were the examples I put into the slide show. I think one class used eduglogster really well and included graphs etc One classes’ examples were really just on how chocolate was made/cocoa production or pictures accompanying powerpoint information on fairtrade and I felt, had really missed the point of the mathematics/infograph/ to persuade etc. The two other class works I didn’t actually see. Not everyone in my class got it either but they were beginning to by the time they were due. So by coming in and seeing where we are up to could help us redirect if necessary.

I loved being part of this and I hope when I move to my new school next year I will incorporate some of what I learnt into some learning programs.

Project Plan (Year 5 class on Visual Numeracy Project)

How I approached the project with my students:

- Phase 1: Discussed fairtrade, Edmodo familiarisation, children researched in own time – immersing themselves in Youtube videos on fairtrade, chocolate companies and their websites and discussion about the terrible situation of child labour
- Phase 2: Described the task of creating an infographic, showed examples of info graphics
- Phase 3:

At home	In class (limited computers)	In Computer Time

• Researched the cost of blocks of chocolate.
• From the Cocoa Farm to Chocolate – created a flow chart – posted to Edmodo
• Researched a chocolate growing country – posted to Edmodo
• Answered a survey about chocolate buying habits of either the student or their family
	• Lesson 1 Showed a Youtube video on the impact of Fairtrade on a community
	  ○ A fairtrade community ends up with clean running water – eg. One single temperature tap for a community
	  ○ Each child counted taps in their home including toilets, garden etc. Worked out average taps per household, how many homes on a typical block in Kellyville – the contrast was compelling.
	  ○ Even with Fairtrade their lives are tougher than ours.
	• Converting the blocks of chocolate and prices to comparable units from at home research
	  ○ Per 100 g
	  ○ Dividing by 2.5, 3 etc
	  ○ Recorded results in books.
	• Looked at tables and graphs – interpreted data
	  ○ Eg. Total sales compared to Fairtrade sales – over approx. 10 year period.
	• International Timezones – a Term 4 topic
	  ○ Used atlases to identify cocoa producing countries. This led to discussion about latitude
	  ○ Used atlases to discuss timezones – noticed that Ghana was on or very close to 0 degrees (same as Greenwich) etc.
	  ○ Calculated hours ahead and behind …..
	  ○ Included in this lesson – estimating latitude and longitude of various cities around the world using atlases. Used an on-line calculator to give us exact location.
		• Created a graph in Excel of the cost of chocolates per 100g and converted it to a more pictorial version using images.
		• Learnt how to print screen and paste into Paint.net to create the graph as an image/jpeg file.
		• Children planned story they wished to tell with their info graphic
		  ○ The real cost of chocolate
		  ○ The bitter truth for the sweet tooth
		  ○ Etc.
		  ○ Outlined the importance of including a graph in a pictorial way as part of the presentation.
		  ○ Enrolled students in Eduglogster
		• Children began infographics using Eduglogster – realised some limitations despite it being a motivating resource.
		• Most children used Powerpoint, some used Eduglogster and one child used My Prezi.
		• Once one or two groups created excellent data graphs we showed these to whole class to let them know what we were aiming for.
		• Others tried these and some came up with own ideas.
		• A range of quality ensued in the overall production.

- Phase 4:
  - Assess using the rubric – which may need to be adjusted slightly as it was written early on – to do.
  - Feedback: Overwhelming number of responses and contributions on Edmodo.
  - Feedback: Written responses posted to Edmodo in the form of a short assignment.

In Class Lesson 2

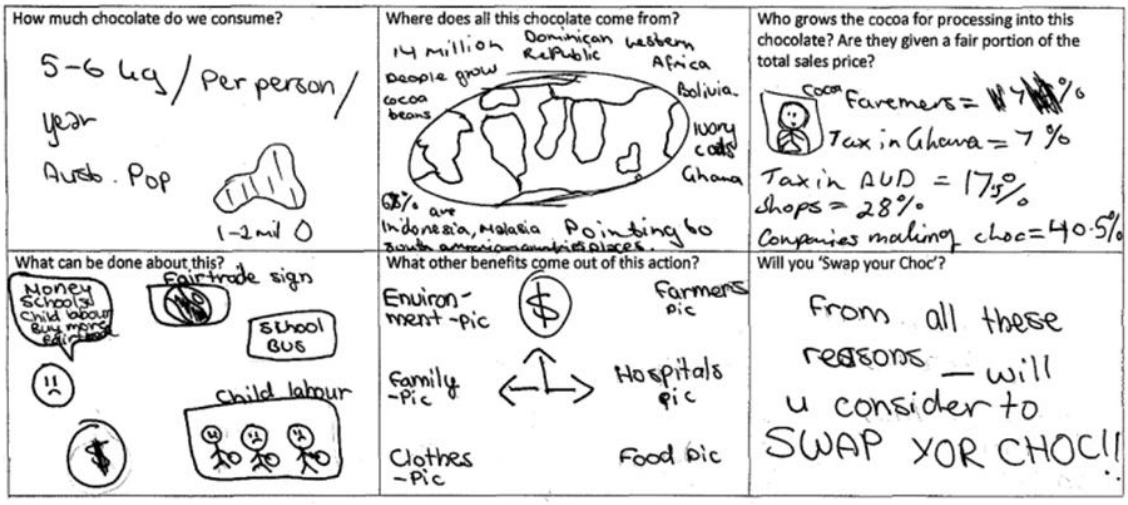
- Converted the prices of blocks of chocolate into comparable units Eg. Per 100 gram
- Created a table in workbooks – 250g block – divide by 2.5 s

Brand	Type	Price	Size	Price/100g
adbury	Milk	$4.72	200g	$2.36
adbury	White	$4.72	220g	$2.14
reens	Milk	$4.29	100g	$4.29
-ntl	Milk	$3.97	100g	$3.97
Vestle	Aldo Milk	$4.29	118g	$3.64
Nuttakers	Milk	$4.61	250g	$1.84
lollies home	Milk	$4.29	350g	$1.23

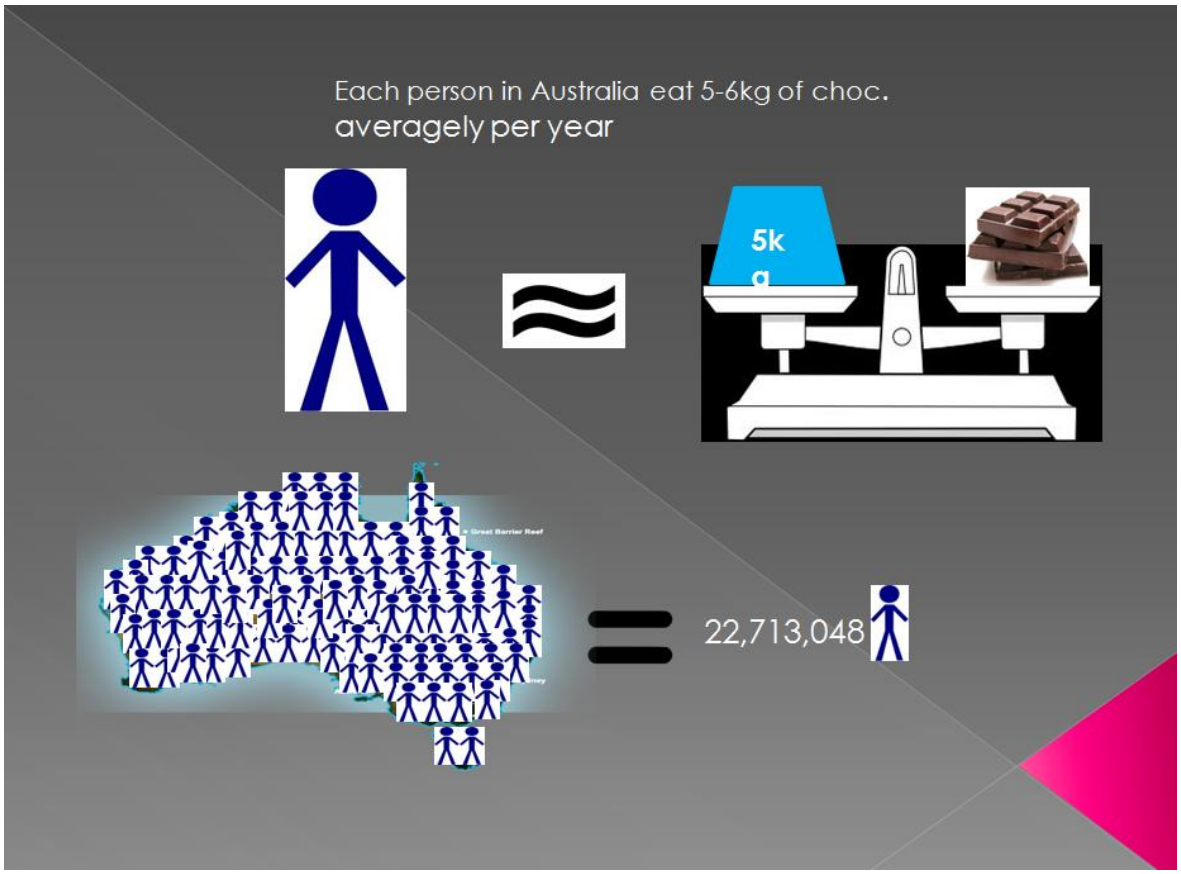
700g for $6.40 100g = $0.91
350g for $5.20 100g = $1.48
200g for $3.57 100g = $1.79
900g for $8.86 100g = $0.98
450g for $13.72 100g = $3.05

Example Story Board

INFOGRAPHIC STORYBOARD:



Example Infographic created by student



Student Reflection

Turned in **Nov 2, 2011**

Assignment

Edmodo is a great, fun educational website for children. The info graphics and pictures give my c
and I an understanding of topics we havent even heard of.
The you tube videos are really very touching and make our class believe that there is something
can do.
Edmodo also allows kids to get better at researching, therefore resulting in faster typers, less typ
and more educational resources.
Edmodo gives children the ability to see what their class and class teacher thinks about certain
topics, such as fairtrade and government. Schools can share ideas and opinions on issues worl
wide.
I enjoy being able to work independently and communicating with our classmates and teacher.
My class have become more aware of things that we didnt even know were happening until recer
Creating infographics on glogster and powerpoint has been a fun activity.

Overall, Edmodo is a fantastic, and well worth visiting, website.

Comments

Appendix E: Immersion Excursion Full Report

Description

Camden Haven High School and Macquarie ICT Innovations Centre recently worked together to provide a very innovative, immersive project design, to helpstudents to think deeply about the choices they make and how they impact on their future, the local community and the world around them. 'Food for Thought' provided the opportunity for 40 Year 8 gifted and talented students to investigate issues of food sustainability and design a real-life, local solution to an issue relevant to them and win a $1000 grant to make their idea come to life.

A key aspect of the project involved students participating in an intensive 3-day workshop in Sydney to develop their thinking and ideas. The students worked on their idea throughout the 3-day workshop which involved visiting a number of partner organisations including: The Botanical Gardens Education Centre where they developed their knowledge of bush foods, pollination and sustainable use of land; Taronga Park Zoo where students develop their understanding of sustainable animal husbandry; Oxfam Australia where students learnt about activism and the impact of world food consumption; Sarah James from Macquarie University explained the key local and global food sustainability issues.

An exciting element of the project was the collaboration between the key partners with Macquarie ICT Innovations Centre providing the big ideas and completing a technology audit to help the school understand how the technology could be best used to enhance the project. Concetta Gotlieb from MacICT explained 'we wanted to select technology that would give them real-life practical skills for working and living in the 21st Century, for example we used spreadsheets for collecting data, mobile phones for field work and video as a key communication tool.'

One of the key elements of the project was that the students developed mastery of the content by having unbroken time to develop their thinking. Their communication, writing and thinking skills showed a clear improvement over the course of the three-days as they developed a very adult like understanding of the topic. They also develop confidence in leadership, public speaking and working in groups. At the beginning of the excursion they were very reluctant to answer questions or speak to subject matter experts but by the final day at MacICT there was a real buzzy atmosphere. "The students could speak confidently about the issues and had identified areas that were personally relevant.'

On the final day of the excursion the students participated in a full-day workshop to crystallise their ideas, turn them into practical suggestions and create media to share their ideas for review. The students' ideas ranged from creating stingless bee hives to increase flower pollination in their area, providing community resources and workshops to help increase the amount of local food consumed, implementing a system of capturing and containing methane from animals and generating a social web campaign to increase awareness of the importance of eating imperfect fruit.

The Laurieton Rotary Club who are supporting the project by providing the $1000 grants commented that this type of collaboration allows the local community to benefit from the fresh ideas and contemporary thinking of very capable high school students.

Ruth Winfield from Camden Haven High School commented that these students who come from one of the lowest socio-economic areas of the state had 'developed an awareness of the opportunities for them at university, the relevance of technology in helping them achieve outcomes, the importance of taking

personal, practical action to address global issues. Not only this but the truly cross-curricula nature of the project ensured they used mathematics, science, literacy and creative arts skills.'

Student Feedback

- Yes! I had no idea that food affected us all on such a large scale, and that it had such huge consequences in other countries, and will continue to do so in the future. (Sam – Camden Haven High School)
- Maybe showing a few more examples of how food sustainability is achieved in local areas- we were shown a few examples at Taronga, Botanical gardens etc, but maybe a few more might have been helpful? And making the trip longer!! (Sam – Camden Haven High School)
- go to more places that we could interact with and were fun as well as learning what we needed to learn (Michael – Camden Haven High School)
- yes. because as well as being fun we got a further knowledge in sustainable food and how we can for a more sustainable way of growing food for ourselves. we also got to look around university's which we may want to look further into them for the future (Rebecca – Camden Haven High School)
- because it gave people to see the perspective of others thoughts on food sustainability (Tayla – Camden Haven High School)
- because it was so much fun and we learnt heaps at the same time (Sienna – Camden Haven High School)

Teacher Reflection

Background

During our GATS meetings we regularly discussed how we could motivate our top students to achieve more. The GATS team had developed a thorough understanding of Gagne's model over a 12 month period and realised our top 20% of students were underperforming. So how could the team start to address and change this culture of perceived underachievement. Three issues emerged from our discussions.

Issue 1

We toyed around with what changes could be made to Stage 6 but felt this was too late to address cultural change. Historically, there had been a culture of providing extension to YR 7 and 8 programs for the top classes by providing a rich task. In this context, a rich task represents a cross-curriculum project that extends the critical thinking skills of students over the project. A number of teachers are involved but not necessarily all subject teachers. The implementation of this program provided a valuable opportunity to provide professional learning to staff on the implementation of GATS strategies. This was taken up by teachers with varying levels of enthusiasm. The Yr 8 program was supported by the local Rotary club and consisted of a research project based on global issues. This program had been in place for four years and was starting to look a little dated.

Issue 2

We discussed the need for students to visit universities in order to make considered decisions about their futures. Many of our students had not visited any universities and had no one from their families who had been through university. We talked about the how this could provide greater motivation for students as they could visualise a place where they could pursue further studies. We identified that the earlier this happened in high school the better.

Issue 3

We had worked with MAC ICT successfully in 2010 with our top Yr 7 group to develop their critical thinking skills through the use of technology. This started off as a rich task but became an extended task as we responded to the students receptiveness. By the end of the year, we had a large group of students (20 or more) who were highly engaged and enjoyed being presented with learning challenges.

Addressing the issues

As a leader, I consider part of my role is to spot opportunities and make connections between ever changing events in the school. Through team discussion we decided we needed to extend the learning of this group of students who were moving from Yr 7 to Yr 8 and maintain their commitment to learning. We decided to run a motivating excursion to Sydney specifically aimed at this class. One of the team members was particularly keen to promote this as a reward for being in the top Yr 8 classes. I endorsed this idea but I didn't want to simply have a feel good excursion with limited purpose. I recalled last year having a discussion with Concetta Gottlieb at MACICT about the possibilities of an immersion excursion where students visited the centre in Sydney for the day. I started to wonder whether there could be an opportunity to combine the two along with our rich task. I started discussions with our GATS team and Concetta at MACICT. The teachers were keen for the students to go to Sydney but wondered whether the idea of the rich task during the excursion would discourage students from attending. I needed to make a decision. My gut instinct told me that the students would respond to a highly engaging intellectually demanding excursion environment. I needed to craft this and bring the teachers along with me.

Making it happen

The ensuring eight weeks were difficult. There was a huge workload to create a new excursion from scratch, manage all the logistics and ensure the excursion had the intellectual rigour required to extend and interest the students. The teachers within the school competently arranged activities such as the zoosnooz, the talk from Oxfam, group structures, permission notes and equipment. I liased with the teacher at MACICT who understood the intellectual challenge I was trying to create. In hindsight, I spoke openly with all about what we were doing the excursion but found I delegated responsibiliites that I felt people could manage. The problem we then faced was that the cost of the excursion could exclude some students attending. This was potentially problematic in terms of organising who would go and how we would cover lessons at school. I raised these concerns with our principal to see if she would subsidise the excursion to any extent. Her response took me by surprise when she said she would subsidise the excursion. The team was very excited about the principals support and couldn't wait to tell the students. At this stage of the planning, we felt it was time to tell the students about our plans. We invited our principal to be part of this as we saw her role as being crucial to the excursion's success.

Leading up to the excursion, we organised some pre-teaching activities before the excursion to introduce the topic of food sustainability. Concetta and I committed to spending some planning time during the holidays to ensure there was enough reflection and rigour during the activities to encourage the students thinking. We based this on some of the work completed during MAC ICTs project called the Food Brain and developing the program through the Williams model. Accompanying this I negotiated with the local Rotary club to support the changed focus of the program.

Once the excursion started, the students enthusiasm was infectious. There was the nervous anticipation from teachers during some activities when we hoped what we had planned on paper, through emails and telephone calls would translate into engaging learning. By the beginning of the second day, students were starting to make connections and the hum of their learning was increasing. At this point, the teachers frequently commented on how the students were learning at an increasing rate and were benefitting from the sole focus on one embracing topic. The students were provided with smartphones at the end of each activity to complete a reflection activity.

The depth of the students learning and understanding started to emerge on the third day in the MACICT centre as they applied their knowledge to develop original local solutions to food sustainability in the form of a persuasive proposal at the MACICT centre. Some of the students made comments that the notes collected during the excursion on the Edmodo blog by themselves and others helped them to synthesise their ideas. The students thoroughly enjoyed being in the university environment and found the technology available to them supportive in developing their ideas.

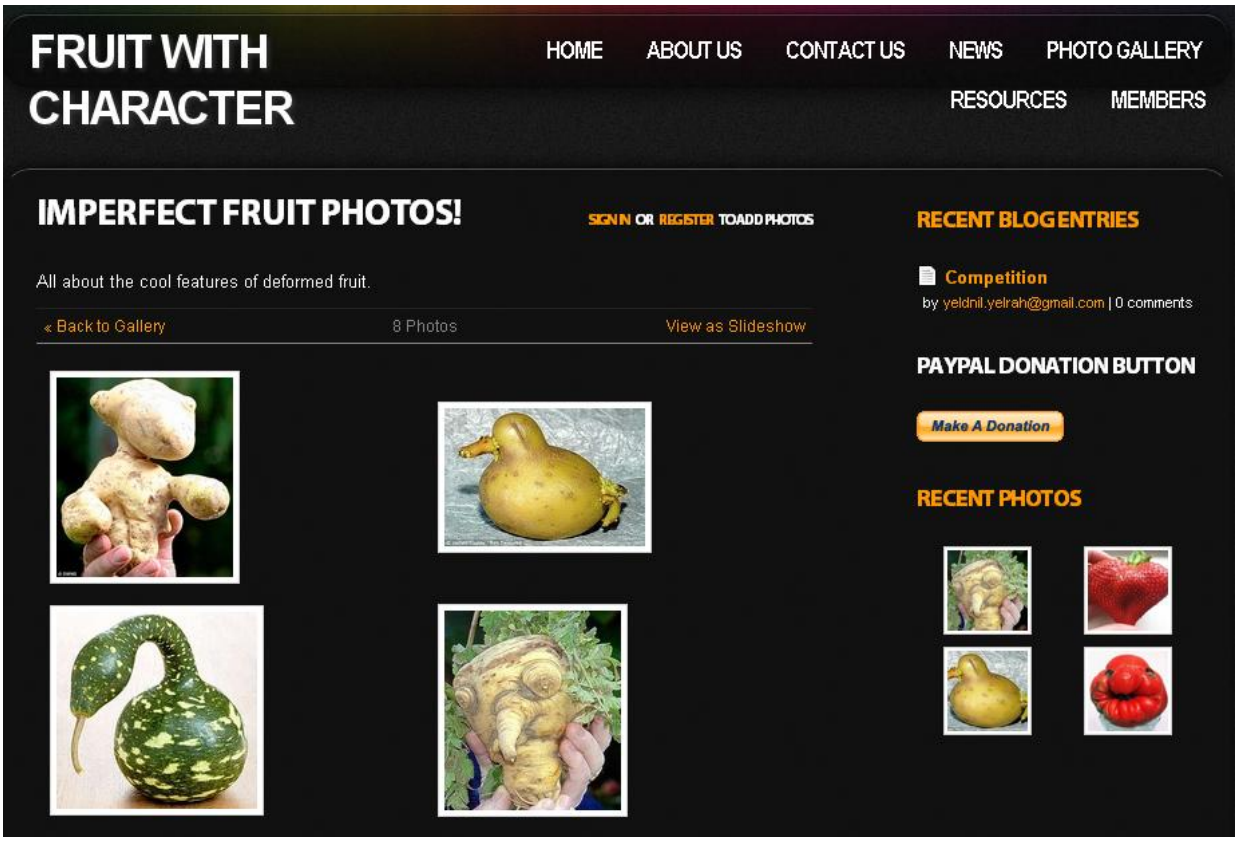
We returned to school exhausted but very pleased with the outcomes achieved by students. This manifested itself in a teacher debrief in the school car park after all the students had gone with a group wave as we felt the impact of a job well done. When I saw some of the students the next morning I realised they would be powerful ambassadors as their motivation for increased learning was tangible.

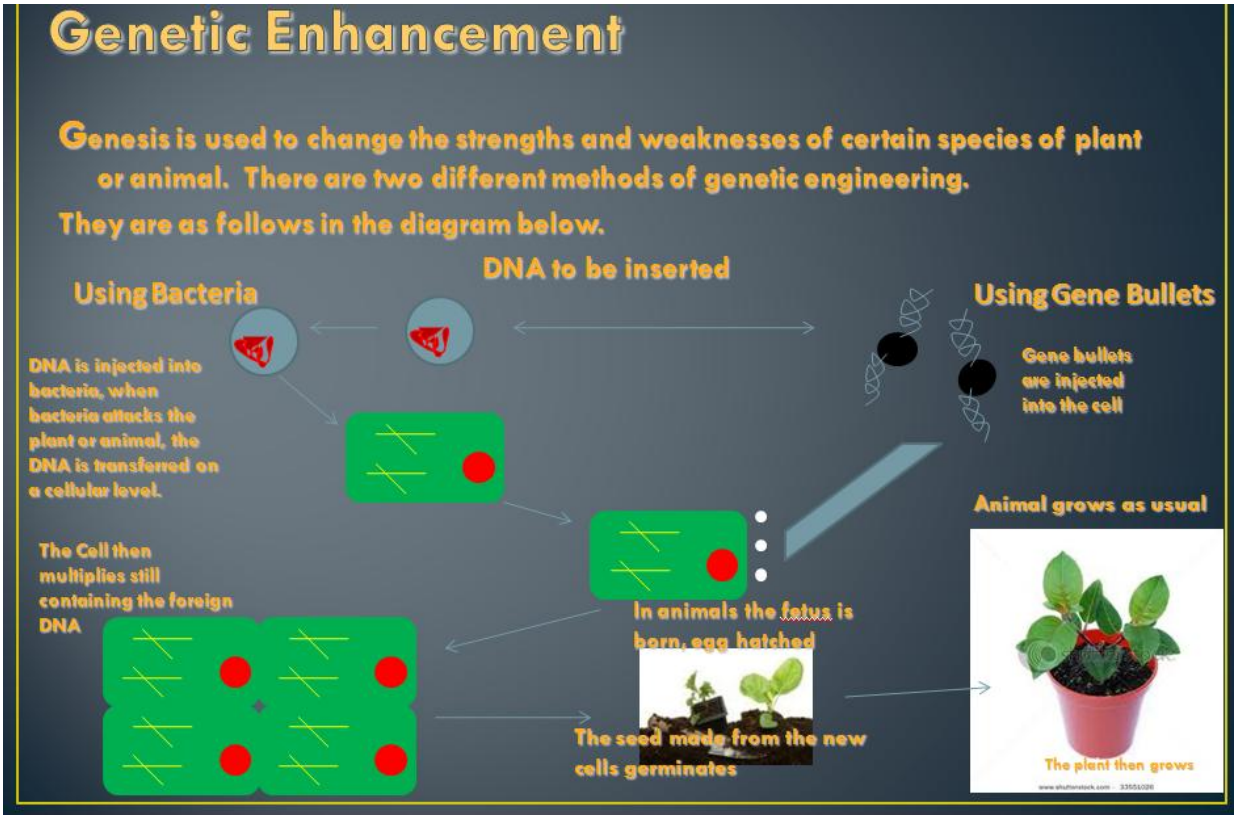
So why does this matter

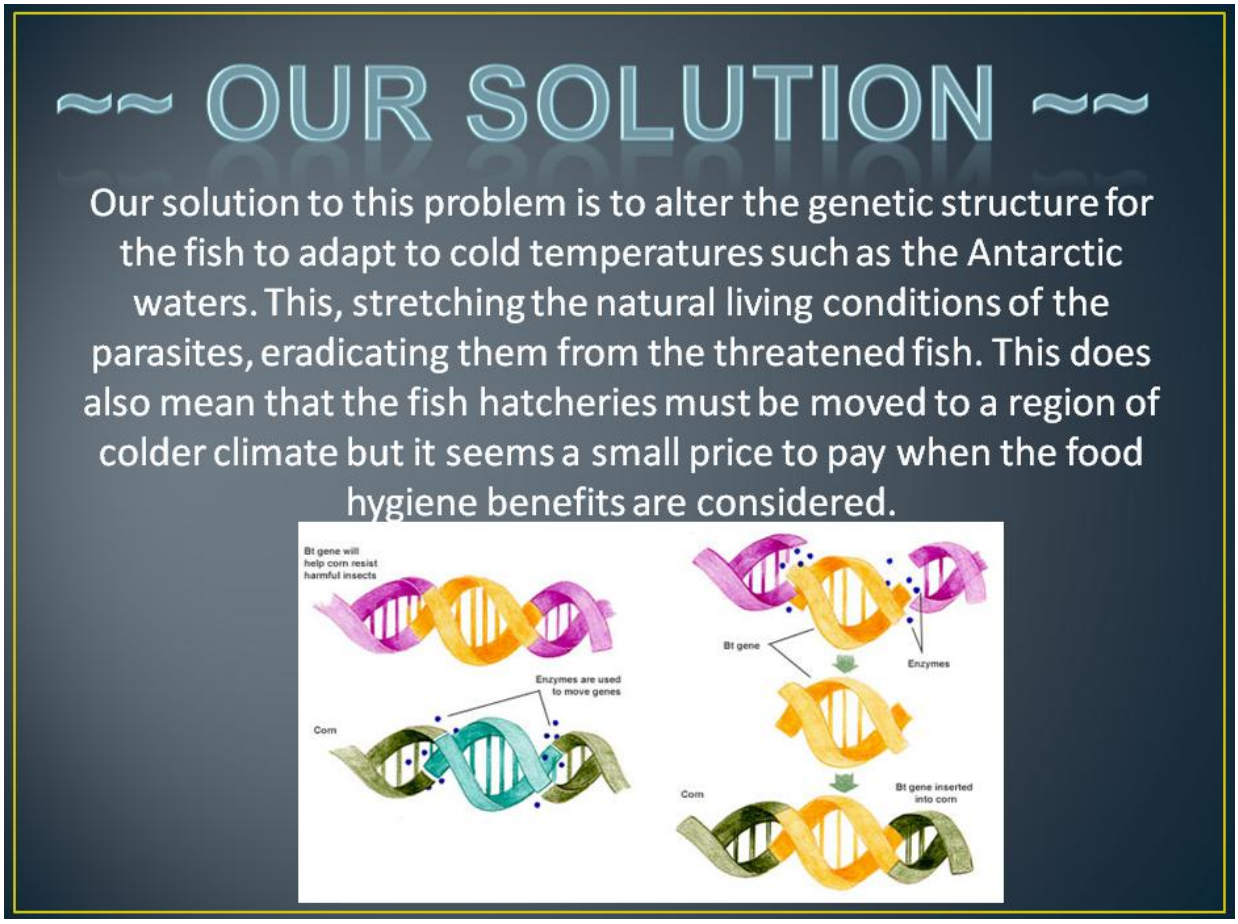
The excursion provided a valuable opportunity to model high order teaching strategies in an environment without constraints. The excursion effectively gave the team a blank space for 3 days to develop the excursion. The support from MACICT served two purposes, the technology support ensured the students reflected on their learning through mobile learning strategies; access to the centre was crucial for consolidating the students learning before returning home. Systemically the school has endorsed this learning activity for the following year. It will continue to serve several purposes, as a motivating factor for students in top classes in Stage 4; provide an example of an innovative project for GATS strategies in our local community of schools through teaming and provide an example of how to integrate technology into quality learning experiences. We are so thrilled with this project that we have now established a wordpress blog that will be used to document our initiatives with support from MACICT. One part of the work is done but really this innovation has provided the impetus for more.

Worksamples

Student concept – social website idea ‘Fruit with Character’







Future plans

- Future planning – phones, where to from here, mobile wireless, QR codes
- Further develop the activities so that the students are more actively engaged throughout
- More consultation with the partners – maybe a website will help

Appendix F: Connecting Classrooms India Full Report

Description

The Foodbrain project was a part of the 2011 Tara.Ed Teacher tour in which 4 Pre-Service teachers from Macquarie University spent three weeks living and working in a rural Indian village, teaching in the local school. Hosted by Macquarie University ICT Innovations Centre, the Foodbrain project connected an Australian and Indian school online via a blog (www.foodbrain.edublogs.org/).

The program, lasted 2 weeks and was designed to fit into the stage 4 syllabus (year 7) crossing social science, computing and home technology classes, building on current theses already being studied in those subjects.

Year 7 students from Braidwood Central School connected with year 6 Indian students from Rosary English School Ajra. The project was designed and implemented by the Macquarie University pre-service teachers, in consultation with teachers from Braidwood. The Topic explored was "FOOD" – looking at how food is produced and used in each respective country (see unit outline for more details), with the final product being an interactive, cross-cultural blog boasting recipes from each country.

Alongside the set topics for investigation, the blog had a "QUESTION BOX" where students from each country could upload any questions for the other party to answer.Both the Question Box and introductions were monitored by the Tara.Ed Tour Coordinator and Teachers from Braidwood Central School. The outcomes of the program were:

- the development of cross-cultural understanding between Australian and Indian students,
- hands-on learning experiences for participants and
- application of ICT skills in a real learning situation.

Feedback

Positives:

- The Blog proved to be very popular amongst the students, particularly in the introductions/question box sections which allowed children to interact directly
- Indian students took more than just the learning outcomes away – they were able to use internet technologies for the first time to interact with others.
- Personal connections were made between the Australian and Indian students through the online interaction.
- "Food" as a topic proved to be very interesting – there were many ways in which it could be shaped to fit the curriculum and various subjects.
- I am glad to see this blog and will keep on reading it to see the wonderful things the students from both schools are learning. (Rebecca, Blog Reader)

Improvements:

- Greater collaboration (possibly face-to-face) between Australian school/teachers and Tara.Ed Pre-Service teachers prior to departure
- Greater clarity in tasks/expectations from both sides, including what/when blog posts will be made. It is very disappointing for students involved if they do not get a reply.
- NSW school holidays cut the project short – this needs to be investigated prior to departure.

Findings

The September Tara.Ed Teacher Tour is an annual event to this particular school in India. It is one of the more advanced schools in that it has access to both computers and a (very slow!) internet connection. The possibility for future two week projects such as "FoodBrain" is therefore high, provided pre-departure planning is undertaken

Worksample

FOODBRAIN: UNIT SCAFFOLD	Questions	Activities	Learning artifact /Blog
Lesson 1 – Introduce me:	What is your name? Who is in your family? Where do you live? What is your favourite food? If you could ask an Australian child a question, what would you ask them?	Make a profile - Front page of a Food "Passport"	Choose 5 – 8 students to type their profile into the blog Question Bank – questions for Australian students
Lesson 1 – HW **Food Diary**	What do you eat in a single day?	Write down a diary of everything you eat in a single day	Film 2 – 3 food diaries for blog/copy onto blog
Lesson 2 – Special Food	What do you eat and when? (HW Review) Who does the cooking in your family? Are there any types of foods that you don't eat? Why? What are "special foods" in India? (eg.cocoanut, festival sweets)	"Kitchen Tour"- Film /draw [Group work] - Mini Research project (Using Encarta/Wiki) "special foods in India" Topic determined by personal interest/diet.	Film tour of village kitchen 500 – 800 word mini research tasks

	What makes them special?		
Lesson 3 – Sugar:	Where does sugar come from & how is it produced? What types of foods is sugar in? How many spoons of sugar would you have in a single day? Is sugar good or bad for your health?	Production and Types of sugar chart – using photos taken by the kids. Count the number of spoonsful of sugar each day, convert into a class graph – who has the most sugar!? Collection of Indian recipes/sweets made with sugar	Blog entry: production and types of sugar Meaning of sugar in India Sweet recipes
Lesson 3b – Sugar	Make Recipe from Braidwood	Make recipe of "Australian food" Taste and evaluate food	Film of recipe under production! Evaluation form
Lesson 4 – Eggs	What types of food are eggs in? Do you have a chicken at home? What are they used for? (Eggs, meat, feathers etc)	Role of eggs in Indian cooking – collection of Indian recipes with eggs for Braidwood Graph of who in class has a chicken(s)	Egg recipes
Lesson 4b - Eggs	Make recipe from Braidwood (Pavlova? Meringue?)	Make food Taste and evaluate food	Film of recipe under production Evaluation form
Lesson 5 – Final product		Each student to write and decorate a single page for a hard copy recipe book to be sent back to Australia.	