Taking the plunge: Guided Inquiry, persuasion and the research river at Penrith Public School

Research columns

Scan's Research columns values research as a process which:

- strengthens the theoretical basis for the practice of teacher librarianship
- informs practice, through the application of findings, questioning of assumptions, and identification and analysis of practical problems
- is informed by practice as part of an essential professional practice cycle.

In this issue, **Ian McLean** presents the findings from a guided inquiry collaborative journey. It demonstrates the learning resulting from explicit scaffolding and exciting use of online tools for Stage 3 students, highlighting their improved ability to work with the elements of persuasive text.

Ian McLean is the teacher librarian at Penrith Public School. In late 2010, he attended professional development sessions on Guided Inquiry (GI) with Ross Todd and Lee FitzGerald (2010) and was keen to implement more fully Carol Kuhlthau's *Model for the information search process* (ISP) at his school.

Introduction

A unit of learning for the *NSW Science and Technology K–6 syllabus* titled, *Endangered animals: beyond the rainforest*, was developed for Stage 3 students, and planned for collaborative teaching with each class teacher during lessons in the library. Since the 2011 NAPLAN writing task for Year 5 required students to demonstrate their ability to work with the elements of persuasive texts, this suggested some explicit teaching strategies and interventions that were required to scaffold the students' learning. A cumulative weblog provided support for each week's cooperatively taught lessons, and continues to showcase the final group-constructed digital slideshows to the extended school community, and beyond.

The SLIM toolkit (Todd, Kuhlthau, & Heinström, 2005) was used to collect and interpret research data from the students. One group of students gave impromptu oral feedback on video. Written evaluations on the process were also sought from the classroom teachers.

How effective is Guided Inquiry in enabling students to create original information products that would persuade an audience? What were some of the success stories of teacher interventions that maximised the students' experiences with their higher order thinking and authentic learning?

Literature review

Kuhlthau's *Model for the information search process* (Figure 1) provided a framework for intervention in the investigative process, assisting the teachers and teacher librarian to support students through the phases of the process. Using the SLIM toolkit to collect and analyse data during three critical points in the research task enabled the teachers and teacher librarian to map the changes in students' knowledge and experiences and recognise that the *Formulation of a focus or a personal perspective of the topic is a pivotal point in the search process. At that point, feelings shift from uncertain to confident, thoughts change from vague to more clear and interest increases* (Kuhlthau, 2004).

Investigating in small groups (Figure 2) provides students with opportunities to accept peer ideas, make friends and comfort others (West, Denton & Reaney, 2001, p. 14). Contributing to online searches, storyboarding activities and the creation of digital content for sharing on the *Endangered animals: beyond the rainforest*, 2011 blog extends their social connections with peers and family. Rather than being passive receivers of information, the students participate in texts and become *content producers* (Greene, 2011), who care about others' opinions about what they create (Jenkins, 2009, p. 12).

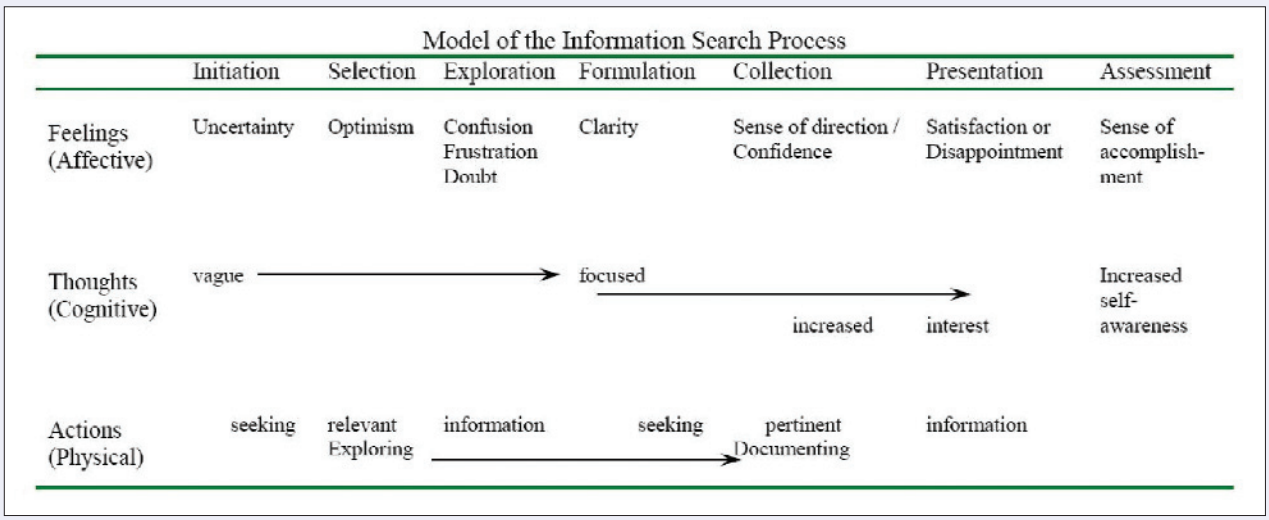

Figure 1 Kuhlthau's Model of the Information Search Process *(2004, p. 82)*

According to Frand (2000, p. 15), ... *being in touch with friends and family at any time and from any place – is of utmost importance*. Projecting forward to these students entering high school, it is likely they will *demand involving, dynamic and personalised content experiences that can compete with the likes of* Facebook (CIBER, 2008), or its evolving and future equivalents. Our students prefer *interactive systems* and ... *trying things out in the digital space, monitoring the reaction and adjusting accordingly* (Rowlands, I. & Nicholas, D., 2008, p. 31).

In his *PowerPoint* presentation about evidence based practice, *Knowing and showing how school library programs help students learn* (2004), Dr Ross Todd advocates that educators make use of exhibitions and product displays, as well as student self assessments of learning, by:

- putting up 'the story' of learning, as well as the products of new learning
- letting the 'voice' of students tell the story.

These points helped to clarify and analyse my research results, and to shape this article. Todd's final message at his 2010 *Guided Inquiry* session was also encouraging: *Just do it*. And thus, I plunged into *The research river* (FitzGerald & Laycock, 2010) with both feet first.

Aims, context and participants

In Terms 1 and 2 of 2011, Stage 3 (Year 5-6) students at Penrith Public School researched endangered animals in science and technology, with the aim that they would use the factual information from group and individual research experiences to produce new information products. Their presentations would involve persuasive elements, and would aim to have genuine influence on the extended school community about the plight of the world's endangered animals.

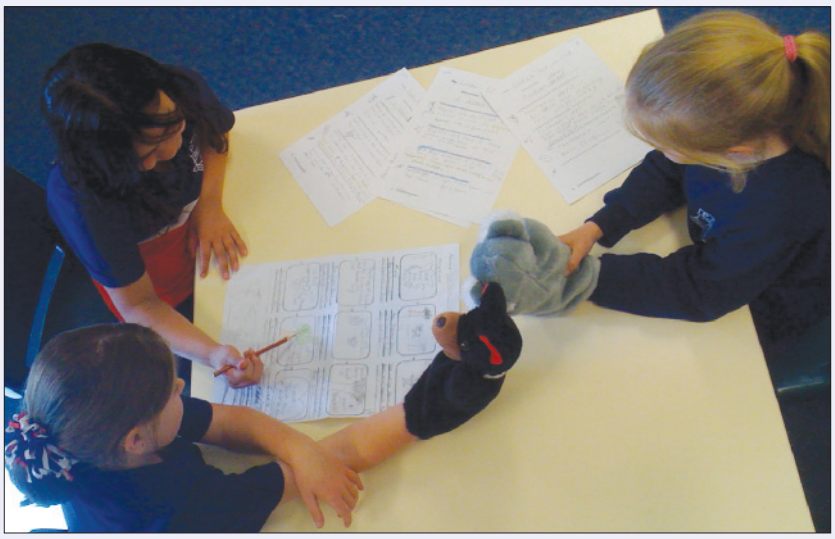

Figure 2 Small group collaboration to create a storyboard

An online blog ... was set up to document the programming and planning for teachers, collate appropriate online resources required for weekly research ...

An online blog (*Endangered animals: beyond the rainforest*, 2011) was set up to document the programming and planning for teachers, collate appropriate online resources required for weekly research, indicate where the explicit teaching of various aspects was required, and (eventually) to host the completed Web 2.0 products to an international online audience via the internet. Each class would also introduce themselves in a jointly-constructed message (Figure 3).

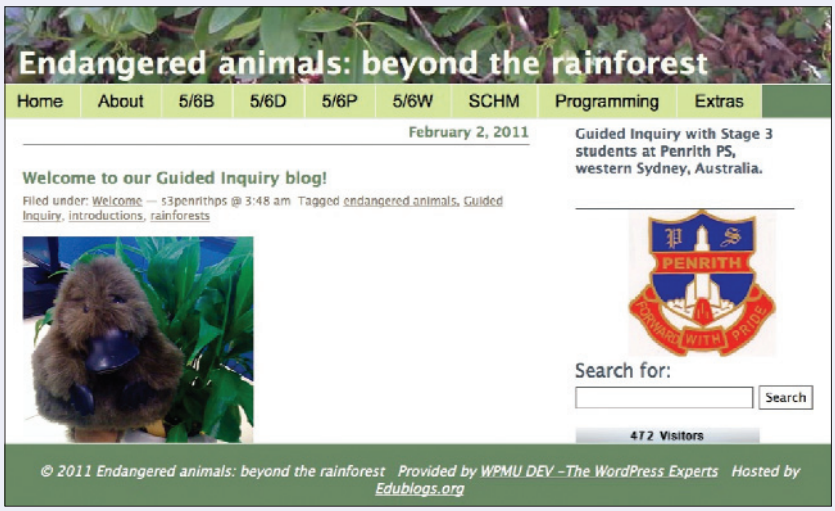

Figure 3 *Endangered animals: beyond the rainforest blog*

A section of the blog would feature *Creative Commons* images that compared the Information Search Process (ISP) of Guided Inquiry itself to the course of a typical river. This strong, visual analogy, courtesy of the previous work of teacher librarians Lee FitzGerald (Loretto Kirribilli) and Di Laycock (Barker College) was an essential strand of the teacher interventions that would guide the students towards the achievement of outcomes.

The establishment of a free *PhotoPeach* account, accessible through a teacher level username and password via NSW Department of Education and Communities' computers, in tandem with the *Edublogs* site, provided an additional information communication technology (ICT) component and was used to publish and share the students' completed products (and several sample storyboards). *PhotoPeach* is a free online Web 2.0 facility which permits ease of image upload. Automatically generated transitions between images, and readily-edited captions, combine to create an efficient multimedia slideshow. The free version also offers a generous, eclectic selection of public domain musical soundtracks. *PhotoPeach* encourages feedback comments from the general public (or password-protected nominated groups) and such comments can be moderated and/or turned off completely if deemed necessary.

Finally, extra hyperlinks were added to the blog to provide an ongoing public platform for exhibiting:

- the students' final persuasive digital products to the wider school community – and, potentially, an online international audience
- the teacher librarian's and students' reflections of the learning
- written feedback from other student groups and educators
- an easily updated, parallel version of the story of learning, as it was taking place.

The beginning

This unit of work built upon the encouraging results of a previous webquest experience, and shared blog site (with Caddies Creek Public School), which a different cohort of Stage 3 students completed on bushrangers (*Gold Quest*, 2008). Most existing webquests on the topic had curiously challenged students to *assume the identity of a bushranger*, which the teachers and I had found inappropriate. Instead, we encouraged them to become journalists, reporting on the need for the monetary bounty that had been set for the capture of the students' selected bushranger. Their findings were reported with a Web 2.0 online activity that generated simulated newspaper clippings (Herring, 2011, p. 123).

Other past and current K–6 school-based programs, which also supported this unit, included:

- thinking skills, including brainstorming and familiarity with Plus, minus, interesting matrices
- Circle time (McLean, 2007), especially for *Talking and Listening* outcomes in the NSW *English K–6 syllabus*
- storyboarding activities over several years (during online NSW Department of Education and Training raps and book raps for *Possum magic*, the *Bear and Chook* books and *Book Week 2010*).

In the first planning meeting, it was ascertained that the Stage 3 class teachers would be tackling rainforest ecologies in Human Society and its Environments (HSIE). If the team-taught sessions in the library were to cover the complementary *NSW Science and Technology K–6 syllabus* unit on endangered animals, this could also address an important requirement of the 2011 NAPLAN writing test: persuasive writing. Whatever information products were to evolve during the students' research, they should emphasise both the visual and written elements of persuasive texts.

Methodology and procedures for gathering data

The SLIM toolkit was used to evaluate the unit, with the teacher librarian compiling and interpreting students' responses to pre-, midpoint and post-unit questionnaires. A huge amount of material was gathered. While I aimed to survey every student in Stage 3 three times, time did not permit the tabulation or interpretation of all data. However, all survey sheets were grouped and filed for future reference. For this article, the student survey results for one class have been analysed, and written and oral comments of a cross-sectional sample of students are represented. Written class teacher and parent comments were solicited on both the process and final products. Additional feedback

from other educators, the wider school community, and members of the general public, appear as cumulative comments on the students' uploaded slideshows; this online feedback is ongoing.

Endangered animals: beyond the rainforest

The initial lessons in the library were planned to complement in-class work and to empower the students to be able to define rainforests. Lists of suitable *YouTube* video clips – most of them highly persuasive, strongly captioned, visual texts – were hyperlinked from our newly-created *Edublogs* site, and played to each class on an interactive whiteboard (IWB). I harvested the most effective clips and created a proforma, to scaffold each group's verbal and written responses.

... this information formed a basis for the jointly-constructed welcome messages on the blog.

At the suggestion of the class teachers, students began the unit in teacher-selected groups to analyse these clips. As the teachers investigated a few rainforest-located endangered animals in class, lessons in the library went *beyond the rainforest*, to encourage less-able students to choose from a range of more familiar animals, and to use their in-class information as additional research support. A summarising *Plus, minus, interesting* (PMI) matrix gave structure to the students' group findings, and this information formed a basis for the jointly-constructed welcome messages on the blog.

The students seemed to find the short, pithy, information rich clips to be informative, entertaining and potentially useful. Linking the clips from the blog placed all of these online resources into one accessible location, and enabled other schools to track our learning or to join in themselves.

... explicit strategies for deconstructing persuasive texts were highlighted.

At every opportunity, explicit strategies for deconstructing persuasive texts were highlighted.

Forewarned of the traps analysed in *Ban those bird units!* (Loertsche, Koechlin & Zwaan, 2004), the teachers progressed the students to research chosen animals as individuals. In only a few cases, students were found to be surreptitiously working in pairs, and this suggested strategies for forming new groups when storyboarding the final products. Unfortunately, by not setting a restricted list on what animals could be chosen, it did become a challenge for the educators to resource certain animals, and to direct students with lower comprehension skills towards those animals upon which more relevant information was obviously available.

To encourage students to question the validity of online information they were interpreting, the deliberately manipulative faux website, *Save the Pacific northwest tree octopus*, managed to keep each class totally engaged to the end of the session. I had deflected the students' suspicions by getting them to focus on persuasive elements of the site, which again gave them practice at deconstruction strategies. It was an excellent discussion starter.

Several weeks further into the research, the teachers and I were feeling that many students' definitions and concepts of rainforest and animal endangerment were still lacking.

While initial estimates had the unit reaching completion in early Term 2, preparation time for the mid year student reports had overtaken us. The finished information products were still quite a way off, so the SLIM toolkit responses #1 and # 2, and the students' scaffolds for fact finding and synthesis, became essential evidence for measuring progress in the achievement of outcomes. On reflection, it would have been valuable to go through these sheets more often with the class teachers to ensure they had more ownership of the whole GI process.

Ian McLean's diary entry:

> *I don't want another afternoon like last week. The students have mostly completed their information matrixes, but I trudged home that day feeling myself sinking into a terrible depression. Is anything actually getting through? Finding relevant texts that are suitable for students at our lower reading levels is proving to be quite a challenge. One class teacher and I had begun questioning individual students about their chosen endangered animal, and their verbal answers seemingly demonstrated that they still have little idea about what constitutes concepts such as* endangered, vulnerable, threatened *– or even* rainforest.
>
> *However, on the weekend, when I re-examined their notes from previous weeks, I was startled that some of their recorded dot points were surprisingly comprehensive and written independently. They just weren't interpreting with facts that signified endangerment; some of the students don't yet have ownership over the factoids they've been recording, certainly not enough to make a convincing argument, oral or written. A gulf is forming for some students – Beware the* Dip! *Was it going to be possible to split the students into separate groups where everyone could contribute and feel involved? Individual products are not going to be possible in the time left. How do we best support the needier students? Some class teachers are concerned that what I interpret as interventions they see as giving them the answers.*

It became obvious that *additional* activities on endangered animals were needed to help the students consolidate their concepts. A lesson on the *extinct* dodo (TV series Extinct, 2000),

and a class brainstorm on possible reasons for its extinction on Mauritius, had been very effective early in the unit. Now, an *additional* explicitly-taught brainstorm of the *extinct* Tasmanian tiger, using another video episode of Extinct and the new, highly-persuasive, picture book, *The dream of the thylacine* (Wild & Brooks, 2011), was added to the unit. I also showcased two recent PhotoPeach slideshows created at the school. While not originally intended to be persuasive texts, the *Clifford and Phoebe at Penrith PS* and *All Black Day: Christchurch earthquake appeal 2011* slideshows were relevant to our situation and had received positive online feedback via comments and emails that these were actually persuading other school groups to raise funds, use PhotoPeach, host a book fair, or sign up for the next national simultaneous reading day.

It became obvious that everyone needed to be using PhotoPeach as the media for their final products, essentially creating multimedia advertisements to inform the public how to help save their animal(s). I had located some puppets and plastic animals, and the NZ slideshow had led me to the wealth of free Creative Commons Flickr images. Some students would use their own drawings. If the students created group storyboards with persuasive images, captions and transition effects, everyone should be able to create effective group presentations and share information (Figure 4). Choice of animal, or continents or attributes, or lack of common attributes held to for groups.

On Flickr, explicit teaching of effective methods to search the Creative Commons database, and how to preserve information for the students' acknowledgements, was essential. While timetable interruptions due to a school musical, and absenteeism, threatened completion for some groups, the SLIM toolkit survey filled

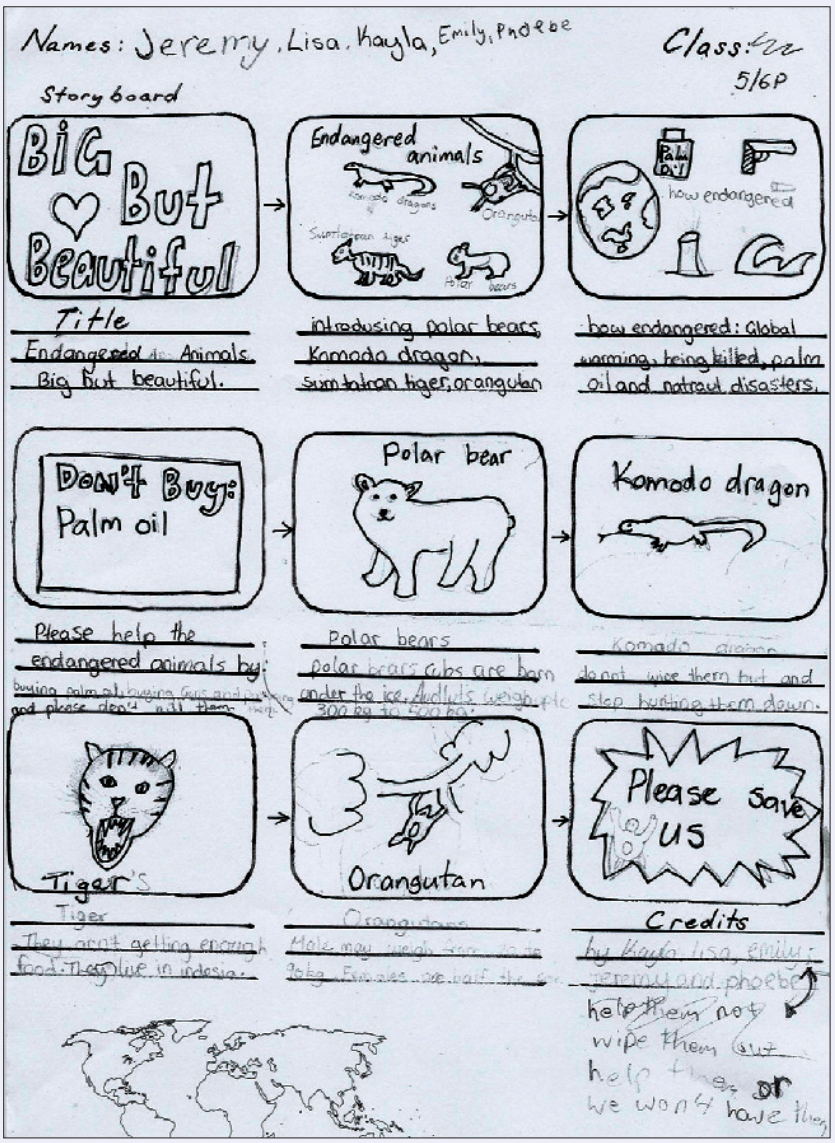

Figure 4 A sample storyboard

in after presentation day indicated that even absent students had their work represented due to the collaborative nature of the group storyboards. While this process was not student-centred enough, in many cases, the students were amazed that they had predicted certain persuasive images that we found easily on the Creative Commons search engine. One group, who had used images incorrectly labelled as *Japanese cranes* by a *Creative Commons* photographer, were very surprised to receive an email from a primary school in Europe, whose students made several corrections to the information, which we quickly amended on the slideshow.

Traversing the research river

Using the analogy developed by Lee FitzGerald and Di Laycock, I had sourced my own Creative Commons imagery and added *The research river* to our own blog site, so it was readily accessible if the need to revisit the ISP arose. Many students did use river terms in conversation after their first SLIM evaluation, so I added a *Where are you on the research river?* question on the second survey. Many students used the analogy again in the final survey without prompting. Several teachers noted in their evaluations – and I heartily agree – that this river analogy needs to be used again in future research units to build some consolidation and continuity for the students' future use of the ISP.

SLIM toolkit results and interpretations

Students **P**, **L** and **N** represent a cross section of ability in literacy.

Question 1: Take some time to think about your topic (i.e. endangered animals). Now write down what you know about it.

Student P:

Pre-unit: *? [i.e. question mark only]*
Midpoint: *There is lots of animals and trees and there is lots of layers.*
Post-unit: *Tigers are being hunted for skin and bone. Only found on the Indonesian island of Sumatra.*

Student L:

Pre-unit: *Don't know.*
Midpoint: *I know that a lot of animals are endangered. Mostly, endangered animals are endangered because what is happening to their habitat. Orangutans are endangered because of deforestation.*
Post-unit: *I learned that animals aren't just endangered cause they have beautiful spots it's because they've been hunted, losing their habitats. I also learnt that animals are very interesting. I learned that animals are important too. I always thought that they will be fine!! But now I see they are nearly extinct.*

Student N:

Pre-unit: *Endangered means there's going to maybe be a time there not going to live about people hunting them. Rainforest has lots of rain.*
Midpoint: *It means animals that are about to die out. We should look out for tigers. The dodo was endangered now it's extinct. There is no such thing as a tree octopus.*
Post-unit: *I learned that we need to take care of the animals that are sharing planet earth with us. The dodo used to be endangered now extinct - we shouldn't let this happen to other animals that haven't harmed us. Lots of animals are endangered. People kill endangered animals for food - can't they be vegetarians? It won't hurt it's not like they're gonna die.*

Comparing the above responses for each student, and against the responses of other students, we can demonstrate the obvious growth in confidence of the cohort as they progressed through the ISP. There is reassuring development in the richness of the synthesis of information, and the sophistication and clarity of their responses.

Question 2: How interested are you in this topic?

Responses from Class A

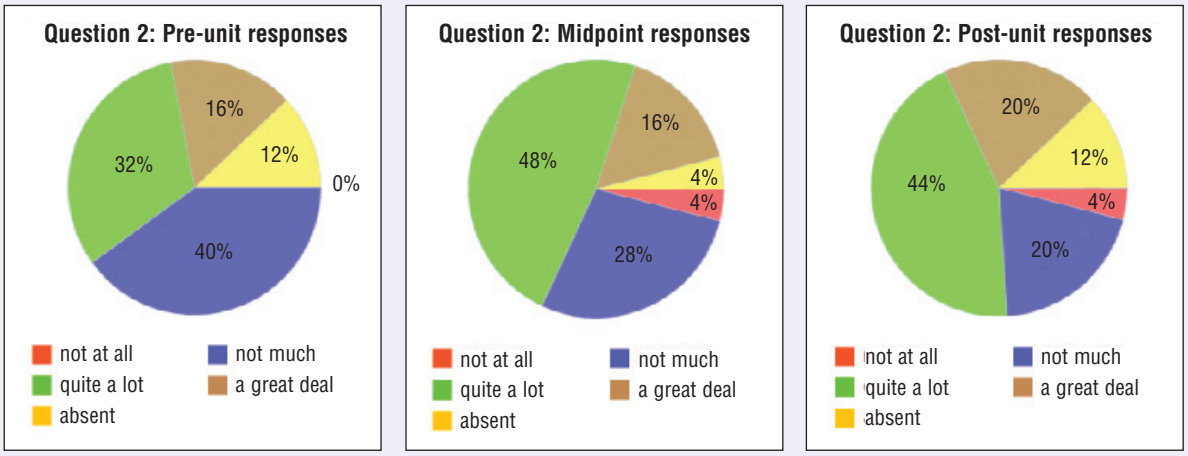

Figure 5 Student responses to Question 2 at three points in the inquiry process

Question 3: How much do you know about this topic?

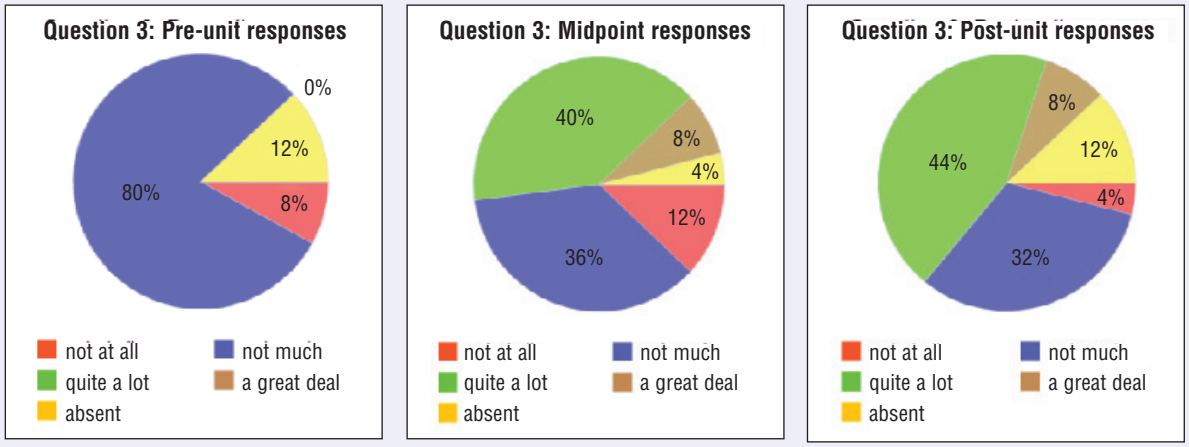

Figure 6 Student responses to Question 3 at three points in the inquiry process

Question 4: What did you find easiest to do?

Student P:

Pre-unit: *Writing research*
Midpoint: *Finding the animals for my diorama*
Post-unit: *The thing I found easy was the storyboard.*

Student L:

Pre-unit: *I find easy is that you can find what you need on websites. All that you can look at one book and it has a lot of information.*
Midpoint: *I found easy looking on the internet, watching YouTube clips, and the Plus, Minus, Interesting sheet.*
Post-unit: *I find that the easiest to do is work with my group because they don't argue (much). Also, I find it easy looking for information about my endangered animal.*

Student N:

Pre-unit: *I find easy using Google and sharing with someone else.*
Midpoint: *Searching on the web, watching YouTube – and listening.*
Post-unit: *I liked it when we were in groups – all of us done half the work each so life would be easier when we had to do research.*

Interestingly, all three students chose to discuss their positive response to working in small groups to storyboard in their post-unit survey (Figure 7).

Question 5: What did you find most difficult to do?

Student P:

Pre-unit: *Editing*
Midpoint: *The writing parts*
Post-unit: *The thing I found difficult was the info on the tiger.*

Student L:

Pre-unit: *I find difficult that when I research about the topic some words I don't [know].*
Midpoint: *I find difficult: the dodo, because of the info; the tree octopus because I didn't know if it was true or not. I think things are going to get harder.*
Post-unit: *I find the most difficult activity is making the storyboard because to be honest I didn't know what a story board was but now I do.*

Student N:

Pre-unit: *When the computer freezes, when I have to do it myself and I get stuck, copying certain things onto the paper, typing real fast.*

Midpoint: *Believing there was a tree octopus but there wasn't. The reasons why animals die out and by the way why do we care!*

Post-unit: *When I had to find books about dolphins half of them were about whales!*

The research done as individuals was a common thread here, demonstrating the students' difficulties with the challenges associated locating, selecting and exploring information, not to mention the teachers' difficulty in locating resources suitable to their literacy levels.

Question 6: What did you learn in doing this research work?

Student P:

Post-unit: *I learnt more things about tigers.*

Student L:

Post-unit: *During the research, I learnt about the Komodo dragon, Sumatran tiger, polar bear and especially the orangutan. I learnt about how to go and get photos on* Flickr *and music [on* PhotoPeach*]. I also found out about the orangutan's habitat, diet, looks, weight [and] height.*

Student N:

Post-unit: *I learnt that teamwork is awesome and we have to take care of animals. The dolphin can survive being under the water for about ten minutes. They are not fishes. People throw rubbish at dolphins.*

I found these post-unit responses to be extremely rewarding and reassuring: Student P had great difficulty with her early research, but blossomed in the group activities, challenging her group members to edit and redit their contributions until they had genuine facts about animal endangerment. Student L discussed how she researched one animal but now knows about the groups' other animals just as thoroughly. Student N's response clarifies how the group members coalesced as a team and became so proud of their jointly constructed efforts.

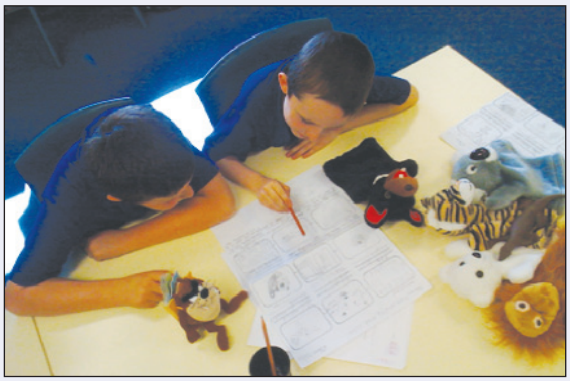

Figure 7 Students responded positively to working in small groups to storyboard

Teacher response

Class teacher commentary by Vicki Phillips, following the day of final class presentations.

Plus	Minus	Interesting
• Guided Inquiry is an effective way of getting an idea across - persuasive texts • students became motivated to achieve and to collaborate on a final product • sense of achievement for everyone in group when final online product is revealed to an audience – international comments! • students working with others, whom they wouldn't necessarily choose • most students experienced a huge degree of satisfaction from their work and state that they have learned how to 'do research' better.	• smaller 'chunks' seem to be indicated for each lesson in the library – perhaps too much was attempted in each lesson, both learning and teaching • there needed to be more opportunities for students to be 'hands on' with computers, especially selecting Creative Commons images and music tracks • students working with others – potential problem if students 'clash' too often.	• Is there a way to shorten the process? - two terms was too long, despite the timetable interruptions • perhaps divide the groups into smaller sections • or restrict choice of endangered animals (and attributes) that can be selected/investigated.

Implications for students using Web 2.0

The *Endangered animals: beyond the rainforest* unit has affirmed that the blog pages, sample storyboards, and digital slideshows have enabled the school to share highly-persuasive texts with the extended community, and we can build and annotate the Year 5 students' ongoing learning journey throughout next year to reflect their high expectations of what might come next with ICT. The students thought systematically and creatively about their topic and the blog site continues to garner online and emailed responses from our worldwide audience.

Through comments added to the students' online slideshows, people showed that they understood the persuasive messages, cared about the students' opinions, and were influenced as readers and viewers. The students care about what they have created. They identified the structure of persuasive texts and used features such as modal words and connectives. The students critically evaluated how their own texts could be structured to achieve a particular purpose, that is, to persuade. They identified the techniques used in argumentative and persuasive texts to influence the reader (*English K–6 syllabus* outcomes).

Implications for home and school interactions

The talking and listening aspects of the students interacting as they brainstormed concepts and storyboards, and edited captions to fit particular unexpected images, assisted the students with their prosocial interactions, particularly in their acceptance of peer ideas, making new friends, and comforting others (West, Denton & Reaney, 2001, p.4).

Parent feedback indicates that the unit helped to acknowledge the significance of family and community in most students' education. The blog has enabled the school to provide an efficient, appealing and motivational online exhibition of student work that can be accessed from home computers with internet connections.

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Implications for teaching and learning

Our school community will continue to collect and analyse guided inquiry data. The SLIM toolkit has provided an enormous amount of data, only a portion of which has so far been analysed.

The project appears to support emerging research findings by Rowlands and Nicholas (2008, pp. 31–32) that information skills *should be inculcated during the formative years of childhood* ... requiring *concerted action between libraries, schools and parents* to achieve this. At the same time, Stage 3's *Edublogs* site is an encouraging example of how a library can try things out in the digital space. The blog has enabled us to put up our story of learning, in tandem with the persuasive products of that new learning.

This GI experience has certainly been successful enough to continue to explore its advantages in 2012. It will require much stronger affirmation of CPPT practices with the Stage 3 teachers. The teacher surveys indicated that they prefer a tighter set of experiences and did not have sufficient ownership of this unit, nor the various interventions, as they evolved over time. More opportunity for students to have hands-on access to production tools was also suggested by both staff and students, and yet this would seemingly require more time to include the necessary explicit teaching. Students with chronic absenteeism can cause much friction during group work when, and if, they have little to contribute to the information pool.

For me, an important strength of the unit was in the quality of verbal interactions with each small group as the members worked with me to translate their jointly constructed storyboards into digital stories. The discovery of *Creative Commons* images that uncannily matched projected ideas on the storyboards, or the impromptu inclusion of other strong, persuasive images that often turned up quite incidentally during my guided keyword searches of *Flickr*, were exciting *personalised content experiences!* (CIBER, p. 46). Many of the students state that they feel ownership over so much more than their own particular research animal. Certainly, some students came close to drowning in The Dip and needed rescuing, but every student still contributed to a completed persuasive product, and can identify their components. The Stage 3 students are proud *content producers* (Greene, 2011) and many still talk about those discoveries, almost every time they visit the school library.

Students were working to achieve Stage 3 outcomes from *Science and Technology K–6 syllabus* and *English K–6 syllabus*. These are available at <s3penrithps.edublogs.org/>.

And finally, a parent's response

Parent, Ann Middlebrook, comments on the students' presentations.

> *The students' messages about endangered animals are very clear. Very creative and thought provoking presentations! It is powerful that these online slideshows have reached an international audience.*
>
> *I loved the students' choices of* Creative Commons *photographic images, and their music choices that*

accompanied the slideshows. One group even used lovely drawings to enhance their persuasive message. The juxtaposition of mechanical cranes beside endangered wetland cranes was excellent. I also liked how one group told us that we can help the white lion and the cheetah by supporting zoos with breeding programs. I didn't know that, in Victorian times, people killed hummingbirds for hair ornaments.

These digital slideshows are just as clever as any of the persuasive advertising discussed each week on TV's The Gruen transfer. *We should send the makers of that show the URL to the school's* Endangered animals: beyond the rainforest blog! World Wildlife Fund (WWF) *might also be interested in seeing the slideshows.* ■

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