# The Le@rning Federation and the Victorian Department of Education and Training trial of online curriculum content with ESL students

## Introduction

The Le@rning Federation (TLF) undertakes trials in conjunction with education jurisdictions and sectors to investigate approaches teachers adopt when integrating the new online curriculum content into teaching and learning activities in a range of educational, socio-economic and geographic contexts. This trial, in October and November 2005, explored the pedagogical application of TLF online content in three Department of Education and Training (DE&T) Victoria schools in the Western Metropolitan Region with students from language backgrounds other than English. The project built on the commitment of the Victorian government to enhancing education opportunities for students from language backgrounds other than English and was aligned with three current initiatives of DE&T: introduction of the new Victorian Essential Learning Standard (VELS), the English as a second language (ESL) strategy and the Digital Content and Creation initiative.

This trial was conducted simultaneously alongside a trial of learning objects with Indigenous students in the Gippsland Region of Victoria. Many of the findings from each trial, despite the different cohort of students, are similar and reference to the report from that project is beneficial.

**Purpose of the trial**

- increased understanding about the capacity of online resources to support students from language backgrounds other than English, including recently arrived students

- teacher professional development in the use of online content to support quality teaching and learning

- units of work and/or lesson plans incorporating TLF learning objects

- practical pedagogical advice for teachers on integrating ICTs and learning objects in classrooms with students from language backgrounds other than English

- materials to support the TLF and Victorian DE&T websites e.g. digital case studies, snapshots of use.

## Summary of findings

Classroom teachers involved in this trial clearly like the TLF digital content and believe it can support the learning needs of their ESL and newly arrived ESL students. The extensive use of multimodal content, engaging interactive learning contexts with voice-over audio support and immediate feedback focussed on clearly defined concepts and skills, and opportunities to revisit and redo the learning activities are features of the digital content which seem to be of most support to these students, say the trial teachers.

However, this trial also indicates that successful learning outcomes for ESL students are not solely dependent on the learning objects. Teachers in this trial used a diverse range of pedagogical practices in which to embed the use of the digital content. Students worked alone, in groups, in whole class sessions and discussions; they used a range of complementary offline and online resources, activities and worksheets; they extended the content into other learning domains and reflected on their new understandings in a range of ways.

Implications emerging from the trial include the need to provide professional learning opportunities for teachers of ESL students for exploration of the new digital content and sharing of their professional expertise in devising relevant and challenging complementary learning contexts appropriate for these students.

## The trial

Two primary schools (Debney Meadows Primary and Kensington Primary) and Debney Park Secondary school each with varying numbers of students from language backgrounds other

than English including new arrival students were selected to participate. The principals selected two teachers to participate in the trial.

An initial workshop, jointly conducted by Olivia Clarke, (TLF Program Implementation Advisor) and Louise Bowe (Senior Project Officer, eLearning Unit, DE&T) was held at The Le@rning Federation in September 2005. In attendance were the six classroom teachers and the Janet Saker, from DE&T's LOTE, ESL and Multicultural Education Unit.

During the workshop, participants explored the suite of TLF digital content, discussed ways in which the content might be incorporated into aspects of curriculum being taught in Terms 3 and 4, began the design of units of work incorporating digital content and ascertained access and delivery arrangements for the content at their schools. Infrastructure support to the schools involved in the trial was provided by the DE&T eLearning unit.

Following the workshop, teachers further developed lessons or units of work incorporating the digital content and implemented them in the classroom. During the classroom implementation phase Olivia and Louise visited each school to observe and record lessons in action. A second day-long workshop was held in December in which participants shared the work they had done, including tabling of examples of student work and reflected on the use of digital content, in particular its usefulness in meeting the learning needs of their ESL students. Interviews with teachers were also recorded and transcribed. A number of products have resulted from the trial:

- This report which documents the trial process and outcomes
- A DVD which complements the report. The DVD contains digital stories with perspectives from classroom teachers and students about learning with the TLF online content
- Units of work in which learning objects have been integrated together with snapshots of exemplar classroom practice.

## The schools and their teachers

Each of the three Western Metropolitan Region schools had significant numbers of ESL students in their student cohort. The trial classes included mainstream classes with half numbers of ESL students who received additional in-class and/or withdrawal support; mainstream classes with all ESL students with continuous intake of new arrivals, and a bridging class for new arrivals transitioning from an intensive English language school to mainstream classes in the secondary school.
All of the trial teachers were competent users of ICTs although none had previously used TLF digital content in their teaching and learning programs.

The trial classes and computer access:

Debney Meadows Primary
- Two Year 1/2 classes with the two teachers sharing curriculum planning.
  All but two students in both classes were newly arrived ESL students – from Somalia - with the others from Vietnam and China
- Access to a pod of six computers adjacent to four classrooms
- Access to a laboratory with 1:1 student computer ratio and a screen and projector
- Teachers: Catherine Whiting and Jodie Parnis

Kensington Primary:
- Grade 1/2 mainstream class
  - more than half the students were Australian born. The ESL students included students from China, Kenya, Malaysia,
  - four computers in class
  - regular timetabled use of 20 networked library computers
  - Teacher: Jackie Ross
- Small withdrawal group of seven ESL and special needs students from a

mainstream 4/5/6 class. The ESL students included students from Somalia, Sudan, China, Turkey, Vietnam, China and Croatia
  - shared mini lab/pod between 3 classrooms
  - regular timetabled use of 20 networked library computers
  - Teacher: Fiona McIntosh

Debney Park Secondary College
- Year 9 mainstream Science class
  - 50% ESL students supported by literacy support staff
  - Timetabled access to computer laboratories
  - Teacher: Tom Tahos

- New arrivals Bridging Program – nine students from Sudan, aged 16-18 with
  - very low literacy and numeracy levels compared to their peers who have had
  - continuous schooling.
  - Timetabled access to computer laboratories
  - Teacher: Adriana Pejic

## ICT access and use of digital content

All schools were well resourced with computers. Kensington Primary and Debney Park Secondary are also both Victorian Creating E-learning Leaders (CELL) schools. The CELL initiative is a key element of the Department of Education and Training's strategy to develop teachers' ICT skills. The initiative builds upon established infrastructure and training opportunities, and introduces new resources and partnerships for Victorian state school teachers to further develop their ICT skills, knowledge and understanding. 28 schools are involved in the CeLL initiative as a result of the relationship between Microsoft and the Victorian Department of Education &Training.

Regular use of computers for learning was routine in the two primary schools. Kensington Primary had 4-6 computers available in the Year 1/2 class with additional 1:1 access in the library. The Year 4/5/6 class had access to a pod of 10 computers adjacent to the classroom as well as access to the library computers. The library had an Averkey system available for demonstration from the desktop through a television set and a data show projector.

At Debney Meadows Primary, a shared bank of six computers was adjacent to each of the two classrooms and each class had timetabled access to the computers in a laboratory. Digital projection was also available in the laboratory. Each class spends two hours a week with the IT specialist in the laboratory and half an hour a day is devoted to ICT use around the literacy program.

For most of the newly arrived ESL students at Debney Meadows, the only time they have on computers is what the school provides. Nevertheless, as with the ESL students at Kensington Primary, the students are very confident in the use of computers and showed a remarkable level of skill considering their background. Students could logon, navigate the school network, open and save files, work with multiple documents including simultaneous use of learning objects and associated Word documents.

The secondary students at Debney Park had access to well-equipped laboratories and to smaller pods of computers between classrooms. Both teachers used computers to some extent in their classes but regular, sustained use of the computers is more difficult because of timetable arrangements. This meant the secondary students did not spend nearly the same amount of time using the digital content during the trial period compared with the primary schools. However newly arrived ESL students readily adapted to using computers and quickly picked up the basic skills.

The DE&T eLearning unit ensured that the TLF digital content was easily accessible to teachers and students from each of the schools' networks. All teachers were also able to access the content preloaded onto their department-provided laptop computers. Prior to the trial none of the participant teachers had used learning objects in their teaching and learning programs.

# The students

The focus of this trial was students learning English as a second language. The majority of the students were recent arrivals from either Somalia or Sudan and in early stages of English language learning. Generally from refugee families, some of these students had never handled a book or pencil before arrival at their Australian schools. Some arrive suffering trauma from their experiences as refugees. Certainly none of these students had prior access to computers before arriving in Australia. Most of the students now live in public housing blocks near to the schools and do not have computers at home. Managing the learning needs of ESL students always presents a range of challenges to teachers. These challenges are magnified when students have disrupted, little or no experience of schooling. As the year 1/2 teachers from Debney Meadows Primary – each with almost all new arrival students from Somalia in their classes of 25 - explain:

> *A lot of our challenges are that we've got to get them into a routine, get them into what is learning all about - the common things of just being able to line up outside a classroom, come down and sit down on the floor and pay attention for 5 to 10 minutes, actually understand what we're trying to get across to them*
>
> *… We have a lot of visual cues, models of things we're trying to get across to them;*
>
> *… just learning how to sit on a mat - how to - work in a group with another person,*
>
> *… how to get along with each other.*
>
> *Trying to link home and school together is another big thing - with a lot of Somalis - whatever happens at school stays at school, that's the role of the school; there's no clear link where parents come up and assist the children or assist them with homework*

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Additional challenges face teachers in providing for older new arrival students. The six-month Bridging Program at Debney Park Secondary College has nine newly arrived adolescent students of varying ages from Sudan. Compared to their peers who have had continuous schooling, their levels of literacy and numeracy and study skills were very low. Although Year 10 was their indicative Year level for 2006 the teacher expressed doubt over their ability to cope. One student needs extra support for learning difficulties in addition to the intensive language support.

Kensington Primary had a broader mix of students compared to the other two schools - with less than half having a language other than English background. The ESL students in the trial also come from a broader range of backgrounds: Malaysia, Chinese, Somalia, Turkey, Vietnam and Croatia. These ESL students were in mainstream classes and received additional literacy support either in class or in small withdrawal groups where appropriate. All of these students had computer access at home.

The aim of ESL programs is to assist students to gain communicative competence in speaking and listening, reading and writing in English. Teachers need to cater for the diversity in student skill level and use a variety of strategies in rich, meaningful contexts to accommodate all aspects of developing literacy. The aim is for student to comfortably construct meaning from visual, oral and print sources and use print and oral language to express themselves in meaningful ways.[1] This trial examined the contribution of digital multimedia interactive content to this process.

# TLF digital content

For the trial, classroom teachers selected digital content from the Mathematics and numeracy, Literacy, Science and Studies of Australia suite of TLF learning objects and integrated them with a range of other learning activities to meet specific learning outcomes. The TLF learning objects selected for the trial included:

## Science

### Day sky night sky (years P-2)
In the learning object students observe the changing sky as day becomes night and then night turns into day again. They identify objects in the sky and can create then create their own day or night sky scene using the elements supplied. Voice-over audio support is available. The completed picture can be printed.

### Light and shadows (years P-2)
This learning object enables students to explore the way shadows are created and the impact that different shapes can have on their shadows.

The above two learning objects were integrated into a unit on the Solar system unit for Year 1/2  Kensington Primary School.

### Explore soil (years P-2)
Students explore the properties of natural soil environments and the interactions between the living and non-living components that contribute to healthy soil.

### Volcanoes (years P-2)
Students direct a robot as it is lowered into a vent in order to examine the action of a volcano prior to eruption. The robot provides the opportunity for students to observe changes in temperature, soils and rocks. Voice-over audio support is available.

### Water types (years P-2)
Students test water samples for salinity levels and sediment content from five different aquatic habitats: a river, the sea, a mangrove estuary, a stream and a dam. Students compare the salinity and clarity of the water samples, matching them with their original habitats. Voice-over audio support is available.

### Experience the weather (years P-2)
Students explore the links between the climates of four locations: Antarctica; the Sahara desert; the New Zealand mountains; and the Amazon rainforest. Using a palette of choices, students select weather conditions typical of each location.

### Volcanoes (years P-2)
Students direct a robot as it is lowered into a vent in order to examine the action of a volcano prior to eruption. The robot provides the opportunity for students to observe changes in temperature, soils and rocks. Voice-over audio support is available.

### Caving (years P-2)
Students explore a limestone cave stopping at different points to examine, photograph or collect specimens.

### Mineshaft (years P-2)
Students examine the links between the resources mined or found underground, and their uses above the ground

The above seven learning objects were used in the new arrivals Year 1/2 classes at Debney Meadows Primary School to assist understanding of physical aspects of Earth.

### Mathematics and numeracy

**Slushy sludger (years 2-4), Vile Vendor (years 4-6)**
These two learning objects from the Chance and data strand of Mathematics are designed to help students understand the concept and language of probability in game-like contexts.

These learning objects were used in a series of lessons from the Chance and data strand with the newly arrived Year 1/2 classes at Debney Meadows Primary School.

**Shape fractions (years 3-6), Dynamic fractions (years 3-6) and Cassowary fractions (years 4-6)**
These learning objects are designed to help students understand fractions using interactive tools and engaging contexts.

They were used in the Bridging class at Debney Park Secondary College with recent arrivals as part of a series of lessons on fractions

### Studies of Australia

**Heroes of the air (years 3-6)**
Students examine photographs, archival moving image and audio files to learn about two famous flights made by Charles Kingsford Smith and his aircrew. Students select and 'collect' items as they go in order to make their own multimedia newsreel about the achievements of Australia's early aviators.
Used in a unit on Flight with year 4/5/6 class, Kensington Primary School

### Literacy for students at risk

**Catch the thief (years 5-9)**
Students explore a range of different oral, written and visual texts to deduce who committed a crime.
Used in the year 9 Science class for a unit on forensic science, Debney Park Secondary College.

## Key findings

This section draws on discussions at the two workshops; interviews with the teachers and students, classroom observations, responses in an online survey and samples of student work. In reporting the findings, extensive illustrative use is made of the voices of the participants where appropriate. The responses are grouped around the use of a particular learning object in an effort to identify features of the digital content which may assist ESL learners and the pedagogical practices teachers adopt in using them with these students.

Although more extensive data was available from the primary schools, comments from teachers and students from the secondary school are included where relevant.
The DVD which complements this report contains vision of classrooms in action, as well as audiovisual capture of the perspectives of teachers and students.

1. **Teachers believed both the subject matter of the learning objects, and the interactive, multimodal formats, engaged and motivated their ESL students and contributed to their learning.**

    > [the content] *supports language development; it is a beginning for integrating computers into the curriculum; engaging and hands on; exciting and interesting audio; helped ESL students gain confidence experimenting with using new words; easily linked to other key learning areas and experiences helps bring the world and life experiences into the classroom*
    > Jodie, Year 1/2 teacher Debney Meadows Primary School

    > *It's a pretty amazing learning object, it's absolutely loaded with things that kids love - I loved it. Lots of history. It's got really accurate footage from the period.*

*They couldn't have found out more about the guy, particularly the two flights that he's famous for, if they'd tried looking for it elsewhere. It beat any book that we found, it beat articles, it was just loaded. It kept the kids absolutely riveted. They just found it really user-friendly. Lots of fun. They absolutely loved the fact that as a result of using it they were able to make their own newsreel and create their own version of Kingsford Smith's successes.*

*... The little core group that I worked with really took on the challenge of trying to tell the story accurately, but in their own words, and including enough graphics that they could explain it to someone else. They ended up just knowing so much, it ended up being such a rich task - the song - everything about it. They just took to it. They just seemed to be able to blend everything together. … for some kids it's probably the best piece of work I've seen them do this year, the outcomes that they achieved, the amount of effort they actually put in, and the way they stuck to the task of finding out about him, really served to enhance their work. With ready access to other learning objects, my ESL group took every available opportunity to explore other learning objects and delighted in sharing what they had found and what they could do.*
Fiona, Grade 4/5/6 teacher, Kensington Primary, Heroes of the Air

*When we were both asked to come to the PD, to be honest with you we thought 'Oh my god, not another ICT program. We're gonna get what we already have knowledge of'. But when we got there and we were shown I was absolutely blown away*

… we hear a lot of comments of 'learning is fun', 'I was never really excited about a volcano but now I am' - all those sort of comments coming from the children are overwhelming to me. And we have our weaker children who don't particularly want to be engaged with anything, who are now making things and speaking about topics that we never knew they could.
Catherine and Jodie, Year 1/2 teachers Debney Meadow Primary School

*I used the learning objects to enhance my teaching of fractions. All three learning objects were very successful. The reason for their success is:*
> - *They fit beautifully into my lesson plan and reinforced my teaching of fractions*
> - *They were easy to use by the teacher and students*
> - *Students received immediate feedback*
> - *The objects were visually stimulating*
> - *Students had fun when they used the objects*
> - *Students had the opportunity to work individually or in pairs*
> - *Students were able to print and save their work.*
Adriana, Bridging class teacher, Debney Park Secondary College, Fractions learning objects

*For the students I teach, learning objects were the perfect package because everything is in it –they relate to the curriculum; they have animation, automatic positive feedback; auditory support and create high levels of engagement.*
Catherine, Debney Meadows Primary School

These teachers' comments support the findings from all other published reports: that TLF learning objects are highly engaging and motivating for students[2].

## 2. Features of the TLF learning objects which support ESL students' learning.

Teachers commented on a range of features in the digital content which supported their students' learning.

## 2.1 Multimodal, interactive presentation of content

The engaging and extensive use of visuals - stills, animations and moving image – and sound; voice over instructions supporting written text; feedback with sound, visual and voice cues and the interactivity, were all helpful for the ESL students:

*… it speaks to them, they can hear it, they can see the words, they can hear the words, they can see the pictures that go with it, the pictures move, they can move the pictures, they can put things in, or pull things out of the pictures.*
Jackie, Year 1/2 teacher, Day and night.

*But the most important thing with the learning object was the fact that it was visual; the questions were read to them as well as the answers.*
*… the first one we did, which was the Slushy sludger, straightaway they just loved the voices on there, they loved watching what happened, the colours; they were just so excited, and they were running around, saying exactly what came off the Sludgy sludger … And then they would use the same language within the learning objects within the classroom; for example, in my class when someone says something right they all cheer which is a part of the Slushy sludger.*

*So not only are they using the learning object, language is being transferred back into the classroom in other situations. Particularly with ESL, that oral development is so important. Now they're transferring the oral components and using it in their writing in quite complex ways*

*And they're a lot more confident using both the words and writing.*

Catherine and Jodie, Year 1/2 Debney Meadows Primary School

*One of the things I see that the group of ESL kids have benefited from was just the fact that they didn't have to battle through oodles of text because of the sound component on the learning object. So they didn't have to delve, they didn't have to read stuff that was too complicated. And the fact that they can go back and forth meant that whether it was one or two tries or maybe more, they could be sure that what they were putting into their little newsreel was accurate. And I think they found that really satisfying - to be able to retell something and know that they've got the facts right, and the bit of puffy chestedness that goes with that for kids that don't always find language tasks - particularly integrated language tasks - all that easy to do.*

*… these kids were really exposed to language that they would probably not have been be able to read or comprehend. I imagine that a lot of them would have given up if I'd tried to present the material in any other format. So it became quite an easy task, rather than constructing in say the previous biography that we had them working on, by getting their research in a different format.*
Fiona, Year 4/5/6 Heroes of the Air

*And with it being visual, and most of them having the auditory within them, and the animation, we just knew that the children were going to love it. And it's not basic animation, it's very creative, the characters, that you've got within them, that music –*
Catherine, Debney Meadows Primary School

*There's interaction with the objects. Instead of just reading a book and just reading information that they probably don't even understand, on the learning object it's pitched to their level number one, and it's also interactive so they can go back and forth.*
Jackie, Year 1/2 teacher, Day and night; Light and shadows

## 2.2 Immediate feedback

Immediate, automatic feedback which scaffolds and supports learning was another valuable feature for ESL students:

> *… they weren't doing a worksheet or a hands-on activity and had to wait to the very end to be told 'well, this one's not correct' and 'what were you thinking here?' There was that automatic response, feedback. Then, when they went to do the next one, it would then also depend on what the answer was, it was steering them into the correct direction that you were looking for.*
>
> *Because they get that round of applause and because that means so much to them, they're now using clapping within the classroom; they are clapping each other, and giving praise for having a go*

Catherine, Year 1/2 Vile vendor, Slushy sludger

## 2.3 Revisit, redo

These teachers comment on the value for ESL and special-needs students to revisit and redo the object multiple times.

> *I think that for a couple of kids in particular who are funded under the disability and impairments allowance*
> *, I think it really made them feel as though they could do what everyone else was able to do, because while it was quite straightforward, the gathering of the information, the fact that they could go back at their leisure and double check the information inside the learning object, just to make sure they had it right - nobody knew how many times they were going backwards and forwards to do the double checking but it meant that their information was just as accurate as anyone else's information and what they chose to include was fine, because that was what they wanted to pop in their little newsreel. And I think they thoroughly enjoyed the fact that they could view it back when they went into the cinema at the end and it didn't seem to matter too much to them that theirs was different - longer, shorter, or whatever. They just loved the fact that they could get on and do it.*

Fiona, Grade 4/5/6 Heroes of the Air

> *The focus group of ESL kids really enjoyed it. They enjoyed going back and forth, creating the day and night sky, researching the different things that are in the day and night sky, and finding out lots of information about meteorites and the Southern Cross, and the different clouds, how clouds are still in the sky at night, and they are there in the day, and how they look different.*

Jackie, Grade 1/2 teacher, Day and night

Catherine at Debney Meadows Primary commented that some of her students must have repeated the objects up to 30 times – for enjoyment, to hear the spoken language again and again, and to revisit the information to accurately complete accompanying worksheets. Repetition of the information and concepts in both oral and print form was of considerable help in advancing literacy.

## 3. Extension of experience, and increased knowledge and understanding of concepts

The teachers at Debney Meadows commented on the way the digital content helped provide a range of experiences for their new arrival students not normally possible in the classroom. In addition, this experiential learning has been an impetus for extension of understanding surpassing what they would normally be capable of.

> *I think one of the positives of learning objects is a lot of the times we can't go on a lot of excursions, because the children can't afford to go on a lot of the expensive excursions that we want to do … I found especially with the Water types that enabled children to have a look at what a dam looked like, have a*

*look at a river, read about it then the mask and the salt to find out more information instead of just reading a book or being told.*

*I think that the biggest positive I have found with learning objects with our children is the fact that they can begin to understand physical concepts. Other things like understanding all the different temperatures inside a volcano because they've gone inside with the robot and gone to those levels and been excited about doing it with a robot who got in a helicopter. And that brought out all those questions about what is a helicopter, and they've gone inside and have experienced that, they've been engaged and challenged, and they're wanting to learn more.*

*The maths chance and data we would not have been able to get them to the point where they're at without the learning object. Not only get them to the point - they've gone beyond - so they've been extended to a level where I think our Grade 5-6 children are not there and we've got Grade 1-2.*
Catherine and Jodie, Debney Meadows Primary School

Jackie and Fiona at Kensington Primary used the learning objects to extend and refine prior learning:

*I also used the Light and shadows learning object and that was great for reinforcing some things that the kids already knew. We had already been outside and done some experiments with light and shadow, and where the sun is, and drawing shadows, making sundials, marking where shadows are at different times of the day. For them to go back and use the learning object Light and shadows to reinforce that knowledge and that information that they gained outside was fantastic. The kids could move objects around, use the sun to find - to put the shadow in the correct place and all of the stuff they had already done outside really helped them and they were really confident when they got on to the computer to get more knowledge.*
Jodie, Grade 1/2 teacher, Light and shadows

*My kids were so interested in the Kingsford Smith learning object that we didn't let it go. Throughout the entire unit of work students refined their newsreels and made them more complex in detail and sophisticated technically. Most students made wonderful observations, comparisons and displayed the knowledge they had acquired. The Kingsford Smith task allowed them to scaffold their own learning experiences. Every time they went back to it they had a bit more, got a bit more- knew a bit more and they loved it!*
Fiona, Grade 4/5/6 Heroes of the Air


## 4.  Digital content used in flexible ways for teaching and learning

Learning objects were not used as stand-alone activities in any of the trial classes. All had been integrated into existing units and themes. Moreover teachers in each of the schools integrated the digital content into their programs using a range of different strategies:

- teacher introduction using digital projection and screen, followed by individual or small group exploration of the learning object

- whole class discussion summarising and sharing information and understandings gained from the using the learning object and making connections with other concepts

- teacher-made worksheets for students to complete, either on line or on paper, in conjunction with the learning object

- students completed KWL charts before and after doing the learning object. (What I know, What I want to know, What I have learned)

- provision of opportunities for students to revist and redo the objects multiple times on classroom computers or in lab time

- in mainstream classes pairing of ESL with non-ESL students
  *we gave them a little bit of initial tuition and a bit of extra time on the computer with the hope that they would then be able to help the rest of the grade out when we came over for a whole group session in the library. …What it meant was that they actually ended up knowing the program quite well before kids came over and then they had a responsibility to take it on and impart what they had learned by pairing up with someone else.*
  Fiona, Grade 4/5/6 Heroes of the Air

  *Some kids worked in pairs, some kids worked on it by themselves, and I got the ESL kids to work with a partner who had some good knowledge of computers and of language. …[it helps] if they have a partner to help them out if they stumble across any words that they may not understand, if they can ask someone rather than waiting around for me when I'm ready, and also just helping them with words that they can't read, and understanding them.*
  Jodie, Grade 1/2 teacher, Day and night

- students did a 'print screen' from the learning object to a Word document and added reflective comments to it about their learning. These versions were then used for classroom display, a record of learning, for assessment and to show parents.
  *I introduced them to the print screen way of copying their final product from their screen into a Word document, and that gave them a chance to write some facts and some information that they'd learnt after doing the learning object under their work. And they could also navigate back and forth between the learning object and their Word document so they could get some other information they couldn't quite remember, or help them spell a word, or help them with different facts. And this was a really good way. They enjoyed doing it because they could have a final product of the learning object to take home to show their mums and dads and it was a good way for me to assess what their knowledge was of the whole day and night.*
  Jodie, Grade 1/2 teacher Day and night

- Opportunities for small group cooperative learning
  Teachers found the learning object provided opportunities for students to work cooperatively, share tips and tricks in use of the objects; and allowed for discussion focussed around the ideas and concepts in covered in the learning object.

  *[I liked] their preparedness to share what they'd found out - little bits of information that were hidden, or clues that they'd found, or short cuts that they knew - amongst each other. Not that they'd normally not do it, but they just really were gung ho to make sure everybody had access to little bits and pieces they'd become privy to. And so that became a really huge factor - the fact that you can print different bits, the fact that you can put sound in here, and go and find the files there. It was really - if you were going to generate a task that you wanted kids to work cooperatively on, it's already there. It's perfect.*
  Fiona, Grade 4/5/6 Heroes of the Air

- Spin off activities also included art work, poetry and design, construction, evaluation of models

Units of work and descriptions of classroom practice incorporating the learning objects for: Earth (Volcanoes, Water types, Experience the weather Soil types; Caving; Mineshaft); Chance and data (Slushy sludger and Vile vendor); Flight (Heroes of the Air); Forensic Science (Catch the thief); Fractions are in progress. The units exemplify how learning objects can be effectively integrated with all manner of other learning tasks and across learning domains. [in progress].

## 5. Links to the curriculum and the Victorian Essential Learning Standards (VELS)

Teachers commented on the alignment of the content to their curriculum needs and to the new VELS requirements:

> *I think one of the great things about the learning object was that it just tied in beautifully with the unit of work we were doing on flight. It was about a famous Australian aviator, Australian content, Australian voices and it really helped with the objectives we were trying to cover in the curriculum.*
> *It's hard to imagine a learning area that Heroes of the air doesn't fit into and some of the stuff that the kids were picking up on and were able to share would tie pretty neatly in with some of the VELS objectives. Kids making observations about women in flight, making observations about fashion, able to compare the times that flight took then as opposed to what they take now.*
> Fiona, Grade 4/5/6 Heroes of the Air

> *The Grade 1-2 classes were doing a topic on space called 'Spaced out' and we wanted the kids to come out of the unit knowing lots of different things about space, interesting facts, stuff about how the planets orbit, their orbit lines, where their place is in the solar system. And we also wanted them to do some deeper thinking stuff like, 'Are aliens out there?' and how the solar system was formed. So the learning object (Night and day) fitted in in the way that how planets orbit and the way that day and night happen, which worked really well. We planned using the VELS planner that we created this year, and the learning object fitted into the Interpersonal strand in the ICT domain. We had been looking at the VELS planner and we used a checklist box format that had Kahootz, data projectors, video cameras and we added our own in there to have the learning objects, because that was what we were using alongside those other forms of technology.*
> Jackie, Grade 1/2 teacher, Day and night

> *[we chose these learning objects because] we wanted to implement a unit on chance and data. It's an area which we have a lot of trouble initially beginning because of the language, and the children have a lot of difficulty using that language confidently*
> *So, in our planning days, when we were writing integrated units based around the inquiry framework, we looked at our focus which - we're doing planet earth, and then we looked at which learning objects would actually fit into our unit of work. And we found that there were 3 or 4 that fitted nicely and they were learning objects that we knew the children would have trouble learning because they hadn't had that prior knowledge - for example, with Volcano a lot of the children hadn't seen a volcano, or heard of a volcano, or even seen what a volcano does … the learning object goes through all that.*
> Catherine and Jodie, Year 1/2 Debney Meadows Primary School

## 6. The student voice

The ESL students including the recently arrived ESL students in this trial, as in all other similar trials - in mainstream classes, in classes with indigenous students and in classes with low achievers, indicate that they like using this type of digital content because it is fun, they like the multimedia elements and feedback, they can work at their own pace and it helps them to learn.[3] Moreover, the student comments often echo the views of their teachers about the learning objects.

A range of comments from students at Debney Park Secondary College:

> *Fun. I liked using it a lot,I like to use the computers in mathematics. I like the program because it is colourful, easy to understand and use. If I made a mistake I could do it again.*

*I think the learning object is good for students who can't read but can listen to sounds.*

I learnt:

*to have fun with fractions*

*I am good at this work*

*using a computer in maths is fun,*

*a little bit about the Australian Cassawary bird*

*Shape fractions, Dynamic fractions, Cassowary fractions*

At Debney Meadows Primary school the Year 1/2 new arrival students were asked about the learning objects they used. Their comments provide support for their teachers' enthusiastic claims about their engagement with learning, and the extent the learning object had helped develop their conceptual understanding and literacy skills (written and oral) - far more than would normally be possible given the very low literacy levels and lack of prior knowledge they initially brought to the tasks.

*I learnt there are different water like dam, sea, rivers and streams. It was fun.*

*I learnt that volcanoes are big and hot and volcanoes have pressure inside them like a can. It was fun and I liked when it exploded and the man said, 'Warning! Warning! It's going to erupt!'*

*I've learnt that volcanoes are big or small and volcanoes can explode. I like the volcano pictures, I like the sound of the volcanoes.*

*This is the volcano learning object. This is the molten rock and this is the ashen rock and this is the volcanic rock and this is the magma chamber. Catherine told us to label the numbers in their correct boxes. What I have learnt?. I have learnt a lot doing the learning object about volcanoes. There are 4 levels of a volcano. They get hotter when you go deeper. They are so hot that the robot could not go to the bottom. The reason why we are learning about volcanoes is because we are learning about Earth and the volcano is part of it. The hottest part of it is the magma chamber. A volcano is the hottest thing in the world. You learn a lot when you do a learning object and they are fun too.*

*My favourite learning object was the Volcano. I like the sound; it helps me when someone tells me what to do. I liked it when the volcano erupted. It was scary but cool. I learnt a lot about volcanoes. Did you know there are four different temperatures inside a Volcano? I learnt never to touch lava because you will get burnt.*

*I have learnt volcanos are very hot. You can not go near the lava because it will burn you. Volcanoes are very unpredictable and dangerous. The learning object was fun. I learnt how to label a volcano.*

*You know my favourite learning object is Sludge Sludgy because like when I click on the sound like this girl it talks funny. I like to learn about the common colour… you have to read it by yourself, and then you need to pick which is the common colour.*

*My favourite learning object is sludger because of the sound. The sound of the machine making the slushy was cool. I really like it when the people clap at you when you get the answer right. I have learnt and understood for the first time*

*what the words like, certain, impossible, unlikely mean. I can now answer these questions with confidence.*

*[referring to Vile Vendor for Years 4-6], impossible is like seeing a unicorn today. Unlikely is when it might not happen. Equal is like a halfe. Likely it coulde. Certain it WILL!! Happen.*


## Conclusion

This small trial suggests that curriculum focused, pedagogically sound, multimedia interactive digital content has the potential to support the learning needs of ESL students, including recent arrivals, when effectively integrated into classroom practice. High motivation levels, enhanced conceptual understanding, improved oral and writing skills and increased self-confidence were features of the classrooms where the digital content was used - with outcomes even surprising the teachers involved. Moreover, the learning objects provided opportunities for teachers to extend their pedagogical repertoire including provision of learning tasks which effectively catered for the mixed abilities of their ESL students.

The findings also suggest that teachers of ESL students should be encouraged to explore the available digital content, select that which is appropriate to the particular needs of their students and to develop teaching and learning strategies which capitalise on the characteristics and affordances of this type of content.


**Notes**

[1] Spangenberg-Urbschat, K and Pritchard, R. 1994. Kids come in all languages: reading instruction for ESL students. International Reading Association, Inc.

[2] Several trials and reports provide early evidence that TLF digital content is engaging and motivating for students and supportive of their learning. All reports are available on The Learning Federation website: www.thelearningfederation.edu.au.

Freebody P. 2006. Early-stage use of The Le@rning Federation's learning objects in schools Results of a field review. January 2006

Freebody P. 2005. Does the use of online curriculum content enhance motivation, engagement and learning? The Le@rning Federation trial review

Clarke, O and Gronn. D 2004. Learning by design:TLF Mathematics and numeracy learning objects in classroom contexts in the Catholic Archdiocese of Melbourne.

Chapuis, L. 2003. Report on a Pedagogical Trial of Learning Objects in ACT Schools

[3] Students express similar views in each of the reports cited in 3 above.