Technology integration through online professional learning

A case study of the Western Australian PiL program

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> Students will only achieve the outcomes required if teachers are committed to a vision of the integration of new technologies into the curriculum and their daily work, and have the skills to exploit the new technologies to expand, extend and modify their practice.
>
> (MCEETYA Taskforce Report Aug 2003, p. 7)

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Introduction

The discussions that led to the Western Australian Partners in Learning (PiL) project came at a propitious time in the evolution of ICT in Australian schooling. Enhancing conditions for the application of ICT to curriculum, professional learning and content development was high on the agendas of Federal agencies and State Departments of Education. The MCEETYA conceptual framework *Learning in an Online World* (2000) had set an agenda for national and state action to review and realign educational infrastructure and policy, and between 2003 and 2005 MCEETYA released its overarching policy statement, *Contemporary Learning* and the associated *Pedagogy Strategy*, both of which emphasised the importance of enhancing teachers' ICT capabilities. By 2004, the Le@rning Federation had developed over 250 individual learning objects with a further 800 in development, offering new learning opportunities primary and secondary students and new professional learning challenges for teachers.

> The challenge is to provide professional learning that keeps staff abreast of new developments. We need people who are collaborative, flexible, willing to learn and embrace change, applying new skills to improve the learning environment. This will happen in a culture which is collegiate and recognises the importance of professional growth and opportunities for all staff
>
> (WA DET: Plan for Government Schools, 2004-2007, p. 16)

At the same time state Departments of Education were moving to extend the role of ICT in state wide and school level innovations in teaching and learning. In November 2002 the Western Australian Department of Education and Training (WA DET) launched the *100 Schools* Project - a major curriculum ICT strategy in the *Plan for Government*

[1] This case study has been undertaken by the Microsoft PiL National Evaluation Team, as part of the Microsoft Australia Partners in Learning (PiL) project. The team comprises Professor Mary Kalantzis, Adjunct Professor in the Globalism Institute, RMIT University and Dean, College of Education at the University of Illinois; Professor Nicola Yelland, Professor of Education, Victoria University; and Dr. Helen Smith, Senior Research fellow, Globalism Institute, RMIT University

Schools 2004 – 2007[2]. In 2003 WA DET initiated a program to enable teachers to personally lease notebook computers through pre-tax salary deductions[3] and in 2004 began the planning for implementation of the *Online Teaching and Learning System* (OTLS): 'a *one-stop integrated shop* to plan, deliver, monitor and evaluate online and blended learning programs'[4].

It was in the context of these state-wide developments that Microsoft Australia and WA DET met in February 2004 to explore options for a Western Australian PiL project. The outcome was a decision to trial online professional learning as a strategy to support Curriculum ICT Coordinators in the *100 Schools Project*, to support teachers taking up leased notebook computers, and to test teacher responses to participating in online learning. The product selected was *pdPoint*, a suite of online and downloadable professional learning tools designed by SchoolKiT International. *pdPoint* offers teachers the choice of three pathways to the development of skills in using Microsoft Office applications in the classroom: a series of thirty-five self-paced online workshops offering expert guidance and opportunities to practice new skills; and instructor-led classes that enable participants to interact online with the instructor and colleagues; and a set of self-paced books that can be downloaded for use off-line.

There were several factors driving the choice of online professional learning product. pdPoint is based on sound pedagogical principles and offers a choice of self-paced and structured learning pathways, and access to lesson ideas and materials that can be immediately applied in the classroom. Its emphasis on collaborative learning and professional reflection (SchoolKiT 2003) sits well with the principles of the WA Plan for Government schools, and its learning management tools enable schools and districts to track and record participation in professional learning. There were also logistical and economic considerations behind the interest in online professional learning. First, WA DET needed a scalable professional learning model and as a professional learning initiative that could be rolled out state-wide and made available to all teachers. Secondly, the unit cost of any state-wide system had to be affordable to DET and individual schools once the trial period finished. Thirdly WA DET needed a professional learning model that would enable remote area teachers to participate without extensive travel. Programs requiring off-site attendance and backfilling by

[2] Learning with ICT took a 'whole of school' approach to the integration of ICT into curriculum and professional practice, with the schools taking on the responsibility for ICT skill development. Participating schools received funding to support professional learning for Principals and Curriculum ICT Coordinators, and to enable ICT Coordinators to spend time with school staff in improving the effective use of ICT
[3] An estimated 80% of fulltime teachers have taken advantage of the program, and there are currently approximately 14,000 leased notebooks in the system.
[4] http://www.det.wa.edu.au/education/curriculum/socs/otls.html. OTLS commenced in seventeen pilot schools, with a further 33 schools to come online in July 2007.

casual relief teachers are expensive for all schools if anything but a small number of teachers are to attend and are a particular burden for remote area schools. Moreover a looming shortage of teachers has meant that relief teachers were becoming a scarce resource.

Teachers have Class! is launched

Under the name *Teachers have Class!*, the online professional learning program using the pdPoint system was launched in September 2004 during the *Connected Learning: the Power of ICT in the Curriculum* Conference in Perth. This conference was a landmark event attended by over 700 school leaders and teachers. Through keynote addresses and workshops delegates were offered strategies for driving cultural change and practical ideas for the application of ICT in the classroom[5], and in this context delegates were given the opportunity to register interest in *Teachers have Class!* Four hundred and six teachers - over half the delegates, and representing most education districts across the state - completed expressions of interest. In February 2005 access to *Teachers have Class!* was opened to all WA teachers through a marketing plan involving *School Matters* advertisements, emails to Curriculum Managers for distribution to Principals and online promotion and registration through the *Curriculum ICT* website.

A statistical snapshot

In just two and a half years, the online professional learning program has made a considerable mark on ICT teaching and learning in WA. Over half of WA's public schools are involved, with an average of three to five teachers per school. In small schools it is common for all teachers to register, and in larger schools, registration by faculty is common. The following statistical snapshot provides an indication of the impact of *Teachers have Class!* across the state.

(a) Number of participating institutions for 2005, 2006, 2007 intakes

Classification	2005	2006	2007
Primary schools	324	240	98
Secondary schools	245	109	50
K-12 schools(i)	8	6	*
K-12 Education Support Centres	26	32	*
Isolated and Distance Education Schools	9	9	*
Other (ii)	18	1	12
Total participating institutions per intake	630	397	160(iii)

[5] http://www.det.wa.edu.au/connectedlearning/index.html

Notes: (i) Includes Schools of the Air and Hospital school

(ii) Includes Curriculum Support, specialist centres and WA DET head office

(iii) The number of participants per school has increased between 2005 and 2007

* Data for 2007 is incomplete as registrations will continue until August 2007

(b) Registrations 2005-2008

Intake	Dates	Registrations	Status of intake
2005	6-4-05 to 30-9-06	633(i)	Registration closed
2006	20-8-05 to 5-2-07	369 (+70)(ii)	Registration closed
2007	1-5-06 to 1-11-07	275	Registration closed
2008	8-2-07 to 8-8-08	112	Registration open until August 07

Notes: (i) The large first group of registrations came at the end of an extended recruitment process that started in mid 2004.

(ii) Seventy participants in the 2005 intake rolled over onto 2006. The total number of pdPoint participants as of 30 June 2006 was 1083.

(c) Level of participant activity 2005-7

Intake Years	Total	Self-paced Books	Anytime workshops	Instructor-led workshops*
2005-6	329	459	28	170
2006-7	344	281	37	343
Total 2005-7	673	740	65	513

Note: * data is for certified completions

(c) Most popular pdPoint workshops 2005-7 by number of teacher registrations per workshop

2005-6Intake		2006-7 Intake		2007-8 Intake	
Workshop title	No.	Workshop title	No.	Workshop title	No.
Creating Thematic Activities	84	Creating Thematic Activities	187	Getting More Out Of Information Searching	34
Developing Games & Puzzles - Word	58	Developing Games & Puzzles - Word	129	Reading - Activating Prior Knowledge	27
Reading - Vocabulary Development	50	Developing Games & Puzzles - PowerPoint	122	Developing Games & Puzzles - Excel	23
Information Design: Using Media with Purpose	43	Information Design: Using Media with Purpose	104	Visual Literacy: Writing with Images	19
Using Sound to Stimulate Writing	42	The Digital Working Portfolio	102	Visual Literacy: Reading Images	19

Notes: Data for the 2007-8 intake reflects registrations since 13 Feb 2007 only. Given that the pdPoint-Instructor-led classes operate on a revolving schedule, the 2007 intake have not been able to choose from all the workshops offered in the Instructor-led format, and final order of popularity for this intake may change.

Implementation of *Teachers have Class!*

Teachers have Class! is managed by WA DET through the *Curriculum Through ICT* program, which is responsible for ICT professional learning, online curriculum and ICT teaching and learning services for WA schools[6]. A curriculum officer in the *Curriculum Through ICT* team organises promotion of the program[7] and teacher registration, liaises with schools, provides email support to participants and monitors the delivery of professional learning, working closely with SchoolKiT International through which the pdPoint is administered.

To access the program teachers register online[8] and receive a pdPoint user name that is valid for up to 18 months. To participate in the program teachers need to have access to a notebook or desktop computer with internet access, and commit to completing up to 5 Instructor-led online workshops over the period of the user license. There is no time release from teaching and other duties and participants may access the program at school and at home. Teachers seeking promotion to the Senior Teacher Classification can have the outcomes of selected pdPoint Instructor workshops recognised through the Professional Learning Institute for the purposes of advancement[9]. pdPoint also acts as an additional support for school-based ICT Coordinators who have chosen to use pdPoint materials in face to face workshops to provide 'just-in-time' ideas for application in the classroom and to encourage teachers to become involved in the program.

In addition to the instructor-led workshops which offer online instructor support and threaded discussion and chat-room facilities, teachers have access to a suite of other professional learning resources and tools:

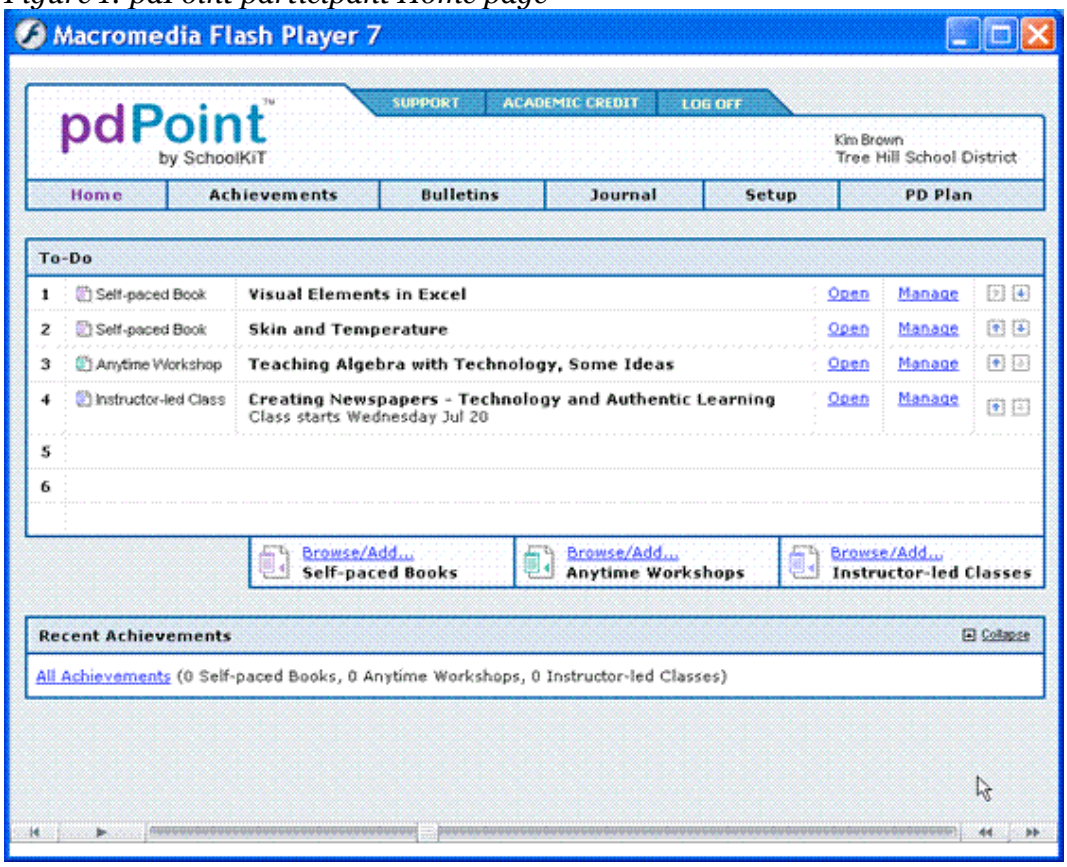
- Anytime workshops – which are self paced versions of the instructor-led workshops – a total of thirty six workshops are available, covering topics related to English, Maths, Science, SOSE and cross-curricular and research activities;
- Telephone and email support through DET staff
- A personal learning portfolio and PD planning tool.

[6] http://www.det.wa.edu.au/education/curriculumict/about/about.htm
[7] This includes promotional workshops, advertisements in newsletters, posters and web-based information
[8] http://www.det.wa.edu.au/education/curriculumict/pl/resources/Register_for_Teachers_Have_Class.pdf
[9] The professional learning requirements for Senior Teacher classification build on teacher competencies as described in Phase 2 of the *Competency Framework for Teachers* (WA DET 2005). The Professional Learning Institute offers professional learning and career development opportunities for employees of the WA government education system, and also evaluates external programs for recognition for employment and promotional purposes.

- Three types of downloadable modules from the self paced library;
    - 10-minute Teacher Skill Builders which focus on a specific technical skill, providing 'how-to' tips and ideas for classroom application, for example, 'Using Hidden Text in the Language Classroom'.
    - Getting Started - introductory and intermediate software application skills in a K-12 education context, for example, 'Introduction to PowerPoint.'
    - Curriculum Integration modules which present more advanced technology integration principles, combining new technology skills with curriculum concepts, for example, 'Graphical Data Analysis'

Once registered, teachers logon to their personal Homepage on the pdPoint website from where they can access learning tools, enrol in new classes and workshops, browse the Self-Paced Books, maintain their own personal learning plan in the PDplanner and view bulletins from the program administrators and their 'To-Do list' of workshops they have enrolled in.

Figure 1: pdPoint participant Home page



The *Anytime Workshops* are a self-paced version of the Instructor-led Classes, and each takes about three hours to complete at times of their own choosing. In contrast Instructor Led classes involve a starting date, interaction with the instructor and colleagues, and the option to complete work for various types of credit. Participants

may choose to browse an *Anytime Workshop* while waiting for their preferred topic to be available as an Instructor-led class, using this time to hone basic skills and/or identify areas in which they would seek instructor help.

Every workshop is comprised of the following four steps:

- Introduction: Text presenting the rationale, framing new concepts, and linking the theory to the practice activities.
- Presentation: Five to ten minutes of Flash-based presentation in which a teacher discusses the practical value of the techniques at hand.
- Practice: One or more *activBook* learning modules: small electronic books that can be used online or downloaded for use off-line. They present curriculum-related activities, demonstrating step-by-step the required technology skills, how you can build your own learning scaffolds, and how to ensure successful classroom implementation.
- Reflection: Questions (and a journal) that prompt teachers to review their new technology skills and integration techniques, and generalise what has been learned[10].

Figure 2: An Instructor-led workshop user interface

[10] See http://www.det.wa.edu.au/education/curriculumict/pl/tour_1.htm for an online tour of pdPoint.

Patterns of participation

Since the program was implemented in 2005, the number of active participants has steadily grown. In April 2005 a total of 16 participants had completed Instructor-led classes and 33 had completed Anytime Workshops; by June 2006 there were 611 Instructor-led class completions and 186 completions of *Anytime Workshops*. In the two and a half years since commencement, the drop-out rate has not gone above 3%: a very low rate in a program where participants have not had to outlay a personal financial investment and where there is no penalty for dropping out (just conditions for staying in). Since 2005 the rate of uptake has increased steadily with the current intake responding to the invitation to register in the shortest period of time, and a large number of applicants report that they have been referred to the program by previous or current participants. The pattern of registration is also changing from individual applicants to teacher teams and faculty level registrations, with some small schools registering all teachers: a pattern that indicates that online ICT professional learning has become part of faculty and school level curriculum planning. Each year there are a number of participants who apply to roll-over into the next intake when their license expires.

Amongst those responding to the survey administered in December 2006 participation was higher in the Instructor-led classes (71%) than in the Anytime workshops (55%) which may be expected given the condition of completing up to five Instructor-led classes. The median number of Instructor-led classes completed was four. A total of 81% respondents reported that they had downloaded self paced books, with just 26% reporting that they used the pdPoint personal portfolio and planning tool.

Feedback on the features of pdPoint[11]

Overall the feedback about pdPoint has been very positive, with a majority of participants reporting favourably on their experiences. Participants expressed varied preferences for the three delivery options (Instructor-led, Anytime Workshops and downloadable self-paced books), validating the selection of a professional learning system which offered a choice of engagement strategies. When asked to express their

[11] Data in this and following sections is drawn from four sources: transcripts of pdPoint workshop threaded discussions; reflections on practice completed as part of the Instructor led classes, feedback provided to WA DET; and an independent survey of a sample of *Teachers have Class!* participants, administered by the PiL National Evaluation Team at RMIT. The majority of respondents to the survey (72%) were in the 2005 cohort. While the number completing the survey was relatively small, it was nevertheless broadly representative of the characteristics of the total population including the breakdown of primary and secondary teachers, school location and size of school. Further the pattern of feedback is consistent with data derived from other sources. On this basis the survey data can be considered as a valid representation of participant responses.

level of agreement to a set of questions about the features of pdPoint program, the following pattern of responses was provided:

- 79% found pdPoint tools easy to access
- 82% found pdPoint tools easy to navigate and use
- 63% said that the availability of online support from an instructor was important to them
- 57% said that the flexibility of the *Anytime Workshops* best met their professional learning needs
- 71% liked the way that the language of pdPoint had been customised to reflect Australian school cultures and curriculum
- 55% said that it was important to them that the professional learning goals within pdPoint had been re-written to align to the WA *Teaching and Learning with ICT Self Evaluation Guide*.
- 59% said that it was important that the Professional Learning Institute had included pdPoint programs in the Senior Teacher professional learning program;
- And just 34% said that it was important that pdPoint courses are recognised by Edith Cowan University for credit through prior learning in their post graduate education courses.

In commenting on the alignment of pdPoint with accreditation options, a number of participants emphasised that while it was a 'good thing' that certificates received for completion of Instructor-led workshops were recognised for other purposes, that did not influence their decision. In this regard the following comment was typical:

> I have used this for my personal professional learning and have not needed to have it recognised as learning- I did it for enjoyment and to improve my teaching skills

The value of flexibility and choice

There is no doubt that the choice of delivery modes in pdPoint contributed to the success of pdPoint with WA teachers. Whether for reasons of time constraints or personal learning preference the availability of self paced resources in addition to the workshops was regarded most positively:

> Going well, have completed five certificate courses … I haven't enrolled in any more classes this term as I have been too busy, plus I am enrolling in a TAFE multimedia course. I love the *activbooks* and the fact you can revisit them later if you forget how to do something.

> Being able to access the Professional Learning at my own convenience, in my own time, working at my own pace was the most important feature for me. I didn't have to organize any relief, it didn't impact on my family and I learned useful skills;
>
> I would like to download more anytime workshops to work at over a longer period of time even after the official course has finished because they have a lot to offer.

On the other hand, registrations in Instructor-led classes have been consistently high. Participants reported that they appreciated the online instructor support and the opportunity to participate in online discussions. Some participants also liked the structure and time constraints built into the classes. While the on-tap availability of the anytime workshops was popular with some teachers, their very flexibility means that participants are more likely to dip into the workshops from time to time (e.g. to see what is on offer, to skim prior to an Instructor-led class) than they are to complete the learning objectives. Instructor-led workshops have an important place in the suite of delivery options as a strategy to encourage completion of whole courses, as one survey respondent commented:

> I think the anytime workshops are really important but I only completed one because I don't have the spare time and I found the discipline of instructor led made me complete workshops.

The requirement that participants commit to completing up to five instructor-led workshops has not been reported as a burden: indeed many participants have continued to register for classes long after their commitment has been met. The expectation that participants will be part of an online community appears to have contributed to a sense of belonging, and provided teachers with new learning experiences, and an opportunity to document and share these with peers:

> I noticed something that I thought was really surprising. In completing the animated poetry activity myself, I wrote my first real poem. It came very easily to me. It was because it combines so many elements of stimulation. I am now confident in this activity because it works for me (extract from reflection on practice)

Moreover, where colleagues in the same school participate in the same workshops, their learning has been integrated into school planning:

> I am enjoying the classes; probably because I work with another two teachers and we exchange ideas and brainstorm together…It would be good if we could see what classes are available right through to October so we could plan more effectively. I've been trying to tie some of the classes into the 100 schools work I have to complete (Primary ICT and subject coordinator).

The threaded discussion facility has also been used to brainstorm ideas and debate issues, offering teachers specific communities of interest that they may not find within their school – nor perhaps, be likely to rap into in the course of a busy day. The following exchange occurred in the context of the 'Using Sound to Stimulate Writing' workshop:

> (T1) In dialogue with a young friend of mine (currently studying at the national film school), I was surprised that in his opinion, some music carries with it 'distractions' when used as a prompt for writing. [His] point was that there will be some students who will be 'tied' to the core message of the images of the original and therefore the use of a certain piece could restrict creativity. What do you think, considering your students and their ages and abilities?
> ...
> (T2) I disagree with your friend as well. I guess I cannot understand how writing could only take one direction at all, much less as a result of listening to a particular piece of music. You're right about writing against type--of course it allows for that.
> ...
> (T3)*Carmina Burana* has been used over and over again in various movies, commercials - some truly scary, some hilarious parodies and others just silly. Every use of the piece did not necessarily invoke ONE image. Maybe the general feeling of the piece is similar, but the images aren't always the same for every person.
>
> (T4)What a fab argument you have made here! And I agree on all points. The idea of 'life outside of' is the very essence of creativity. I firmly believe that for students to be aware of how music can affect our interpretation of a scene or a picture or a text, then they need to *do* it. By deliberately writing to a piece or inserting a particular melody into a slide show to manipulate the audience's interpretation is to 'take the power back' and understand a little better how it is used in the media.
> ...
> (T1) I agree with you about types of music and because of that, I will use this activity to motivate them outside their thinking.

Feedback on professional learning outcomes

The data from the survey echoed that received by SchoolKiT via participants' reflections on practice submitted on conclusion of the Instructor-led Workshops, with a substantial number reporting that their ICT skills and confidence had increased. In particular teachers who self-assessed as having low ICT skills found that pdPoint provided an environment in which they felt safe taking learning risks in an unfamiliar domain, knowing that there was online support from the SchoolKiT instructors in relation to the content of the course and phone help from DET in basic computer skills. Below is a summary of the data from survey respondents in relation to their learning:

- 79% agreed that pdPoint has helped them to increase their ICT skills and knowledge in areas relevant to their teaching.
- 74% agreed that participation in pdPoint classes has encouraged them to experiment with the way they use ICT in their teaching.
- 59% agreed pdPoint has helped them to expand their repertoire of lesson plans and ideas.
- 51% said they were regularly applying what was learned through pdPoint in their teaching.
- 54% thought that the pdPoint programs/tools they had used had contributed to changes in their use of ICT in teaching.

In elaborating on their learning outcomes, teachers commented on their increased confidence and skill levels:

> I have developed my personal skills in the use and application of Excel. I am more confident when using the program and I particularly found the Excel in science workshops very useful.

> Pd point has given me skills but more importantly new ideas with a variety of choices that I can make to select ideas and skills that are specific to my own working needs. Further the ability to do as much or as little when it is convenient to me was important.

Taking new learning into the classroom

Unsurprisingly, teachers engaging in professional learning are looking for ideas and well signposted resources that they can apply directly in their classrooms. Indications from all sources of feedback are that teachers were prepared to pursue learning about any software application as long as skill in that application led them directly back to their classroom equipped to conduct a lesson. In commenting on their own learning teachers consistently referred to the application of learning in their teaching, noting the way particular workshops extended their repertoire of lessons ideas, and the flow-on effect of their students.

> I have added to my repertoire of programs which I introduce to students in their computer sessions. I have used the developing of a crossword from scratch with this group. I believe their skills in using WORD were enhanced by this.

> The developing of a Virtual gallery using a template, besides providing the students and their families with a snapshot of their work this year, also has enhanced their skills in using PowerPoint. It was a learning situation on both sides as I had not presented it before to a class, besides providing the student sand their families with a

> snapshot of their work this year, also has enhanced their skills in using PowerPoint. It was a learning situation on both sides as I had not presented it before to a class.
>
> I used the graphing/science scaffold for my senior students in all my science activities...They like the structure and enjoying completing their written science requirements using ICT. It allows them to present high quality work and they will persist more with improving the depth of their responses.
>
> With boys especially those in year 9, I have found that ICT skills are the way to motivate and engage them in the learning process.

In the reflections on practice (part 4 of the Instructor-led workshops) teachers wrote enthusiastically about their students' positive responses to these new ideas, sometimes expressing surprise at the impact of the innovation:

> With my 2nd graders I played a CD with Rainforest music. As it was playing they were to jot down any thoughts that they were having while listening to it. I was amazed at how they integrated their knowledge of the rainforest in their thoughts. Afterwards we worked on poems. I do feel that the music enhanced their thinking while doing this. I feel like I had better thoughts by doing this, versus just telling them to jot down what they know. But I have to say, I am excited to try the animated poetry with them in PowerPoint, I think they will love it.

Survey data on student engagement and learning outcomes

Changes in student engagement and improvements in deep learning (as distinct from changes in test scores) are notoriously difficult to capture in a form that can be measured, and teachers who were quite confident in claiming improvements in their own skills were much more cautious when it came to their students, as the following statistics indicate.

- 36% thought that there had been an increase in student engagement as they applied the outcomes of their own learning, with 32% saying they were not sure;
- 27% thought that their students learning outcomes had improved [42% not sure]
- 23% said they had evidence that learning outcomes had improved [42% not sure]

Teachers using software applications in maths and science were somewhat more likely to identify specific instances where learning outcomes were improved, as some of the previous extracts from teacher reflections illustrate. In particular teachers identified the impact of Excel and electronic graphing on skill development and the efficiency with which students produced outcomes:

> By adapting *Using Excel Databases* for my very young students I was able to integrate some very powerful word attack skills for these students

> The electronic graphing allowed me to move the students towards achieving higher outcomes of identifying trends and drawing conclusions based on what they had observed and recorded.

> Their work in science has improved with regards to their analysis of data. Prior to having the pdPoint electronic scaffold students spent far too much time manually constructing graphs and lost continuity of experiments. Electronic graphing allowed more to move the students towards achieving higher outcomes.

> The graphic organisers could be used by students for planning many different activities. They could use a T chart, semantic grid or Venn diagram to compare different aspects. They could use a concept map to develop a concept then put this information into one of the different organisers. The idea would be to model the various organisers for the students to give them a "tool kit" they could use in their future learning.

Many teachers referred to the positive impact of ICT – and their own ICT learning – on the classroom learning environment, on the heightened interest stimulated by software applications and on the opportunity they offered students to produce quality work:

> It allowed for a very open ended learning environment where everyone was highly motivated. I think we all learned something. It was a great success

> The higher rate of interest and participation when I did a karaoke program increased student achievement of the outcome in reading writing speaking and health.

> Some students are reluctant to put pen to paper because they are not neat or have difficulties in writing - by using the technology they can overcome these barriers and have the confidence to produce work as good as their peers. The technology enables students to add text and pictures to their work and creates an interest.

While teachers were cautious in regard to the impact of their learning on overall learning outcomes, they were more confident making claims in regard to gifted students with 49% saying that pdPoint activities helped them to extend and challenge very able and gifted students. One respondent saw a spin-off benefit for less able students as well.

> PdPoint activities have not only helped extend and challenge my gifted students but also motivated the less able students to learn in a supportive environment.

On the other hand only 16% agreed that using activities from pdPoint had freed up time in class for them to devote to students who need additional help. 26% were not sure and 37% disagreed with the proposition that their learning had freed up more time.

> For most junior primary students the activities required one on one help, therefore I found it very time consuming to implement it into the program.

Reflections on professional learning as a source of new teaching ideas

While the survey data provides a mixed picture of the impact on student engagement and outcomes, data collected from teachers through their reflections on practice in the workshops suggests that the outcomes of participation in *Teachers have Class!* may be having a significant impact in some classrooms[12]. The reflective material collected by SchoolKiT not only indicates the impact of professional learning, it is also a rich source of ideas on ICT applications to enable authentic and deep learning. This is a source of new ideas that have been trialled in real classrooms that could be harvested by WA DET as an ideas bank for all teachers. Some extended examples are provided here to illustrate the potential.

The first is from a senior secondary college Science teacher who completed the Instructor-led class titled *Developing Games and Puzzles in Word* in November 2006. Although he had not yet had an opportunity to apply his learning due to time constraints, he has evaluated the relevance of activities provided in the workshop and come up with strategies for application.

> In Years 11 and 12 Senior Science courses, we encourage students to choose to investigate topics of their interest, rather than supply them with topics, with the idea of enabling them to become more highly motivated, facilitating higher achievement. Typically, the assessment tasks which are central to the course involve the students in designing, performing and presenting experiments, and carrying out and presenting the findings of literary investigations. In view of this, the choice of topic becomes a rather wide one, in terms of content, at least. Although most of our students have already been exposed to puzzles of this type in lower school, my impression is that they have not been required to design such puzzles, and I agree that this aspect is where they are able to gain the most value from their involvement in such activities. At the outset, if I was to introduce this type of activity to our students, I would lean towards the puzzle, rather than the *word sleuth*, as it has been presented to us in this course, and I would not change its format or requirements of the students. If I was to use the word search activity, I would add the requirement of students to provide definitions and explanations of the words that they include in their lists in an attempt to enable them to achieve more highly.

In the following extract, a teacher of remote area students explains how gifted students are supported in an online environment.

[12] One reason for this difference in the data may be that survey answers are regarded as 'hard evidence' compared to reflective writing which is a conversation with oneself and an instructor where teachers feel freer to comment and speculate.

> I work with groups of gifted and talented students in an online class environment. These students are located in small, isolated country schools in the south west of Western Australia. They work in small groups of 5/6 students at a time. They come online two times a week for one hour each time to work on a collaborative project. I would use activities of this kind to brainstorm vocabulary for a new topic, either given or chosen. I may possibly allow some research time to expand the word list created. This could be completed on the Internet, or by using books, a dictionary or a thesaurus. Then in pairs, using breakout rooms in the online class, I would have them construct either a word search or a crossword using a selection of the words in the brainstorm. Once completed they could then work on each others to find the solution. This type of activity would allow for the development of a vocabulary base that would be the foundation for the topic development. Students would have an increased understanding of the vocabulary related to the topic and be better able to use it in context when completing the related project.

And here is how the same teacher explained how the activity facilitated students' development of '21st century learning skills'

> Using technology as part of the design process allows for the construction of an information product that encompasses cognitive teaching practices and allows students to progress along the Information Processing path. The Introductory phase of this path, allows students to acquire enough initial information on their chosen topic and then to move forward into the developmental phase to construct a bank of knowledge on a topic. Choosing a presentation mode to showcase their found information and having a 'critical audience' brings an authenticity to the whole process. The notion of a critical audience also means that students, when constructing their presentation, be it puzzle, quiz, game, survey etc, know that their information must be valid and accurate. These authentic tasks will provide a relevance to learning and eventually translate into personal and workplace ethics. This type of activity provides opportunity for strategic thinking and develops skill in looking at issues in a variety of ways - or knowing that there are different ways of solving problems. Ultimately, the learning has to be in the doing, or the making of the product.

In this example a primary teacher outlines her plan for applying PowerPoint with students with language impairments:

> Next week I am taking my class to the local shopping centre as a part of our community theme. We are looking at the "Behind the scenes" of a supermarket and a department store. After our visit I will make a non-linear Power Point Presentation of our visit. Some of the sections I will encourage groups of children to help me select photos that they would like included, insert sounds and/or videos that we take and write the text we will include. The children I teach are in year 2 and 3 and all have a Specific Language Impairment, so I cant leave them to complete a task by themselves, but I will encourage them to think about the content we will include and

> why. I will ask children to perform some of the inserting pictures, sound etc tasks with step by step instructions. Once the Presentation is complete I will allow the children to look at it and use the interactive buttons in pairs. We may even choose to upload the presentation to our school website, so that parents can enjoy it. I think that encouraging the children to be involved with making this presentation will allow them to explore the sights and sounds of their excursion once again, and consider the best way to share it with others.

She explains the value of this exercise as follows:

> Working as a group to make a multimedia presentation of an excursion to the local shopping centre will help the children to remember and be able to explain their experiences. The children in my class have great difficulty expressing what they have done to others who have not also shared the experience. They use of this technology will allow them to share pictures, sounds, videos as well as text to explain their excursion to others. Literacy Skills - Communication Skills - the children will be required to communicate their experiences with not only printed out photos and oral narrative as we usually do. They will need to use written language, digital pictures in suitable positions, sound and video to be able to communicate effectively. Thinking Skills - Creative Thinking - the students will need to be creative in the way they present their ideas and be flexible with the way "the story" is told. A non-linear presentation isn't always told in time sequence. They will need to be creative to allow for their experience to still be logical, even though the order of it may be changed around. The use of sound effects and music in the presentation will also require creative thinking. Personal Skills - Collaboration Skills - As we will be working in small groups to complete different sections the children will need to be able to negotiate and cooperate to be able to complete the task. They will also need to be flexible to cater for other people's ideas as each child will not be able to have his/her own way. This task will certainly be a challenge for my class, but the end product which can be shared with others should be a good incentive to complete all of the hard work.

Problems and issues

Lack of time

Overall, only a small number of participants have reported problems with any aspect of the program, and of all problems experienced 'lack of time' consistently outranked all others, from all data sources. This finding echoes that of numerous research studies on the integration of ICT into schooling (see for example Fabry & Higgs 1997; BECTA 2003; Pelgrum 2001). A total of 76% of respondents to the independent survey rated time as either a major problem or occasional problem. In contrast only small percentages of respondents rated lack of computer access as a problem (25% having experienced problems at school and 17% reporting problems accessing a computer at

home. The most common reason that teachers struggled to find time to participate in the program was competition from other duties:

> I think pdPoint is an excellent program that was introduced at the wrong time for me... I found with my classroom teaching responsibilities, my ICT coordinator responsibilities, my senior teacher responsibilities and as the coordinator responsible for reports to parents, I literally have not had time to even look at it.

> I don't have access for students to use computers in my lessons. I never do PD during work hours: always at home and in my own time. Simply no time to do it at school.

> Completed most programs at home...or on holidays then using ideas in planning for next terms work...not enough time to do during the week or at school.

Others mentioned problems fitting the professional learning into their workload:

> With the amount of after hours PD we already do as a whole school as part of our trade-off this year, I have found that I have not yet found the time to squeeze in instructor-led classes. The self-paced ones have been best for me. I am hoping to be able to do classes next year.

And this was a particular issue for part-time teachers:

> The problems related to my time allocation for PD point. I am a part time ICT teacher at 2 primary schools and part timers tend to spend more time at their schools than their hours indicate.

There were also comments about difficulties finding time for professional learning when time had to be found to devote to the introduction of the new WA outcomes-based curriculum.

Access to computers

Despite significant investments in hardware and software in public schools for teachers and students, there were some comments about lack of access to computers and problems with maintenance:

> There is a very uneven access to ICT equipment in public high schools. Even if it is there it may be monopolised by a select group who have priority use.

> Our department has very few computers. It is a huge problem to have a whole class on the computers at once.

> There is also real lack of staff to maintain the smooth running and maintenance of equipment that is required so that when time is short, unreliable computer systems

> tend to be avoided as an embarrassing waste of time when you have a class in front of you.

While such issues cannot be attributed to the nature or administration of the professional learning program itself, the fact they are mentioned in this context suggests that they have had an impact on participant experience. Further, given that application of new skills is so critical to retention of skill, student access to computers is a factor in the overall success of ICT professional learning.

Administrative and technical problems

In reporting on the following issues, it should be noted that they represent the experiences of a minority of participants, and are recorded here in the interests of continuous improvement as they may reflect communication problems and start-up glitches that could be readily addressed.

A problem mentioned by several teachers and ICT coordinators was an unexpected delay in the processing of some applications. This was due to the practice of processing applicants in batches of 50, and did not affect the majority of applicants, but may have acted as a disincentive in some cases:

> When the program was first offered a colleague and I convinced a group of our staff to participate ... by the time some of our teachers' accounts were activated they had lost interest. It was also difficult for us to help them to get going when there were delays in processing their applications (Secondary College Learning Technologies Manager)

With a small number teachers use Apple computers[13] , there were minor cross-platform issues. Although DET has made *Virtual PC* available to enable Apple users to access pdPoint, there were still reports of access problems suggesting that some teachers are not aware of the *Virtual PC* solution[14].

> The ideas were great but I have not been able to fully access and reflect upon the usefulness of the PD materials. Perhaps if the materials were cross-platform, I could spend more time working through them and trying them out. Sorry!

> As I use a Mac at home and I don't have a lot of spare time on campus to use my admin. PC machine this professional learn program has been under-utilised by myself.

[13] There are 550 leased Apple computers through the WA NB4T scheme compared to 15000 PCs
[14] Information about Virtual PC can be found on the DET web: http://www.det.wa.edu.au/education/curriculumict/pl/tchrs_have_class.htm

And, finally, there were some whose unfamiliarity with ICT contributed to a negative reaction to some elements of the online experience:

> To encourage older less computer literate persons like myself to do more, written instructions in the hand would be better. On numerous occasions I got so lost (or lost what I was working on) that if my son had not been around to rescue me, I would have given up and not completed anything.
>
> I found the instructions difficult to follow- that doesn't mean that they were actually difficult to follow, rather that I am not a 'computer' person so trying to follow things on line was not easy for me.

Success factors and indicators

The response of the majority of participants to the *Teachers have Class!* online professional learning initiative has been consistently positive, and indications are that schools now regard the program as an ongoing part of their whole of school approach to professional learning. Two key factors have contributed to this success: the pdPoint system itself and the strategies adopted to promote and implement *Teachers have Class!* as a statewide program.

The pdPoint professional learning system

The conceptual framework for pdPoint grew out of the experience of Australian educators who were involved at a school level introducing ICT into the curriculum and teachers' professional practice. The program speaks the language of the classroom and the school and demonstrates an understanding of the pressures under which teachers work and of what they need to get from a professional learning program: something that can be completed at the individual's own pace, directly relevant to the curriculum and to particular subject areas. The instructional design for pdPoint was derived from extensive research into teaching and learning and the instructional strategies applied to teacher-learners and to the applications they take back to the classroom are based on the following principles:

- Situated learning that provides authentic contexts that reflect the way knowledge is used in real-life;
- Collaborative learning – team projects, peer mentoring and support;
- Recognition of prior learning;
- Reflective practice;
- Use of scaffolded learning strategies;

- Emphasis on higher order thinking skills (conceptualization, analysis, synthesis, evaluation and decision making) and problem-solving projects that challenge learners.

pdPoint applies each of these principles to the question of the effective use of technology in learning. Its approach to technology skill development for teacher-learners is one that embeds new skills through scaffolded practice and regular application that builds new skills into routine behaviour. This can be seen in the design of the online learning environment itself, which requires the routine application of technology skills by teachers as learners: navigating content, contacting their instructor and colleagues, downloading and saving files, emailing, word processing – engaging in an online world not learning about it in the abstract.

The pdPoint approach to the integration of technology into the curriculum is to focus on its use to increase productivity and facilitate higher-order thinking in learning environments that encourage learners to actively participate in the construction of knowledge via authentic real-world projects, rather than rote busy work: 'using technology to learn, rather than learning to use technology'[15] .

In designing pdPoint for international use SchoolKiT educators adopted the US National Staff Development Council's context, process and content standards[16] which articulate the good practice principles outlined above, reference good practice exemplars and access to an extensive research base. In adapting pdPoint for use in WA, SchoolKiT maintained the same design principles but customised elements of the program to fit with the WA curriculum standards framework and also introduced Australian voices into some of the audio presentations in the workshops.

A small number of participants complained about the 'American accents' of some workshop presenters, however, overall there is a sense in the responses of teachers to pdPoint cited in previous sections of this case study that they were 'at home' with the features of the program. Participants have reported that the user interface is 'easy to use' and that the content of the program is relevant to their needs. Because teachers are prompted on conclusion of each workshop to reflect on the principles of ICT integration teachers have maintained a high level of engagement in the program and developed a sense of ownership over their learning and its application.

[15] SchoolKiT Research Base 2005, p. 39
[16] http://www.nsdc.org/standards/index.cfm

WA DET Implementation strategies

As the first systemic offering of online professional learning for WA teachers, *Teachers have Class!* was designed to support a major component of the Plan for Government Schools Key Objective 1: *Engaging students through ICT* by building teacher capacity to engage and motivate students through the use of ICT, building the capacity of districts to support schools in the effective use of ICT, increasing teacher skills in ICT and increasing access to online curriculum resources, tools and services[17]. WA DET identifies five strengths in particular that have helped *Teachers have Class* to achieve positive outcomes in its first phase.

1. Timeliness and successful marketing of the program to teachers.

As noted in the introduction, the online professional learning initiative entered the consciousness of teachers at a time when there had been considerable attention focused on ICT and related initiatives that materially (eg. The Notebooks for Teachers program and 100 Schools Project) and politically (The Plan for Government Schools 2004-7) reinforced the significance of building skills in the application of ICT. The popularity of the 2004 conference both demonstrated this heightened interest and acted as a strategic marketing device for *Teachers have Class!* The marketing effort continues today through Central and District level workshops and school visits, regularly updated web information and encouragement for teachers to refer others into the program.

2. Customisation

DET staff rewrote the professional learning goals within pdPoint to align to the *Teaching and Learning with ICT Self Evaluation Guide* being used by many schools.

3. Senior Teacher Training

Through the Professional Learning Institute, *Teachers have Class!* was included in the Senior Teacher professional learning program in early 2005.

4. Recognition for prior learning

As a further incentive to teachers, SchoolKiT negotiated with Edith Cowan University to have pdPoint courses recognised as a unit for Registered Prior Learning in their post graduate education courses.

[17] WA DET 2003, p. 15

5. Use of research data to define needs and validate decisions

Teachers have Class! gained credibility at policy and funding levels though the findings of the ICT Teacher Competency Evaluation conducted by DET that demonstrated a need for targeted professional learning. What the data showed was that the while the Notebooks for Teachers initiative had been successful in providing access to ICT and teachers were using their notebooks for their own personal purposes, they had not been extending their use into the classroom, and that both skill development and curriculum integration strategies were needed. WA DET also used research findings as a basis for committing to pdPoint for the full five years of the project. An interim evaluation conducted by WA DET in May 2006, found strong teachers support for features of pdPoint that were not replicated in other online professional learning products. These findings contributed to the decision to continue with pdPoint for the duration of the project.

Reflections on the program

The WA PiL project is at the mid-way point of its five year term. Data available to date indicate that the initiative has been successful in engaging numbers of teachers in ICT learning and encouraging them to apply this learning in the classroom. The success of *Teachers have Class!* is a reminder of two related fundamentals of ICT based innovation and change. First that it is essential that teachers have opportunities to develop ICT skills in the context of their work; secondly that for professional learning to be effectively applied in the classroom it must be grounded in teachers' work

In concluding this case study it is worth briefly unpacking these apparently self-evident statements to examine their meaning in the context of professional learning practice.

Not merely technical: using ICT skill development to lead professional learning

There is a clear focus on ICT skill development in pdPoint. The self-paced, anytime and Instructor-led workshops all provide for development and/or enhancement of technical skill: the self-paced workshops address software skill development (using examples and references relevant to teaching) and ideas for classroom application. The workshops focus on integrating technical skill and curriculum concepts.

Data emerging from the first two intakes into pdPoint indicates that learning and applying new ICT skills is acting as a lever to shift teachers' thinking about their roles

and about the possibilities for changing their classroom practice. This shift in thinking is explicitly encouraged in the workshops through the written reflections on practice. Participants are asked to address the following questions:

> (a) Briefly describe a specific classroom activity that you could implement with your students.
>
> 1. Into what topic or unit would you incorporate the activity?
> 2. What task would you assign to your students? Explain modifications or extensions that would meet the needs of your students.
>
> (b) Explain why the classroom activity you described in 4A is a valid 21st century learning experience.
>
> 1. What value does the technology add to the student learning experience?
> 2. Name three 21st century learning skills students are developing in addition to the subject-specific outcomes. How does the activity facilitate the development of these skills (be specific)?[18]

In this exercise the teachers' own skill development and the transfer of this new skill into their teaching repertoire is extended beyond 'experiencing the new' (Kalantzis and Cope 2004) and applying through mimesis. Teachers are being asked to employ higher order knowledge processes: conceptualising, analysing and articulating how their learning is being applied in appropriate and creative ways to extend their students' learning.

It has become commonplace in the literature for researchers to remind their readers that merely addressing teachers' technical skill development will not lead to changes in teaching practice – just as providing schools with computers and network access did not in itself lead to improvements in learning outcomes. And indeed this is undeniable. However, it is not to say that skills in using software applications are merely technical. In the reflective practice embedded in the pdPoint workshops, ICT skill development is acting as a lever to direct teachers into new pedagogical thinking. Further, even at the level of apparently simple skill acquisition there is deeper learning taking place. Every new skill which makes transacting everyday life more amenable and which further embeds the user in the lifeworld of their peers – locally and globally – has the capacity to contribute to more profound shifts in practice.

Embedding ICT routines in practice

A phenomenon that appears to make a significant difference to the take-up of technology in teaching and learning is the change in non-teaching practice that follows

[18] PdPoint workshops: part four, Reflection

from the adoption by education systems and whole school communities of technological solutions to everyday management and administrative tasks and to communication: between head office and schools and between schools and parents. For instance curriculum officers in WA DET observed that the move to electronic preparation of student reports coincided with an increase in the uptake of ICT professional learning.

This anecdotal observation is borne out in some interim findings of research being conducted in Victorian schools. Principals in these studies have reported that when internal school communications 'went solely electronic' not only did previously 'non-technological' teachers quickly develop the skills necessary to comply with the new communications regime, they also exhibited a heightened interest in how they might use ICT in teaching and learning. Teachers in these studies have reported that having access to a notebook computer (through the Department of Education leasing scheme) for their own use – for example for online banking, management of household matters, digitisation of family photos, etc, has quite profoundly shifted their understanding of the role of ICT in professional practice[19]. In these cases, it appears that two factors have contributed to the change. First, ICT has infiltrated the teachers' lifeworld at a quite mundane level: forming new habits through the embodiment of skill in daily patterns of activity. Secondly they have been given the opportunity to move further in their professional practice. One Victorian principal who had 'switched off' non-electronic modes of communication and school management (including reducing the number of staff meetings that had been devoted to administrative matters that could be dealt with through the school intranet), had simultaneously 'switched on' both face to face and electronic communication about pedagogical reform. Each week one teacher who had undertaken ICT professional learning would present a report on the way they were using ICT to change their practice, and each week at least one other teacher would ask the presenter for help in implementing the innovation in their classroom. The principal would take the class of the teacher who'd asked for help to free them to observe in the other classroom, and encourage the establishment of a mentoring relationship. This principal also observed that availability of online ICT professional learning would enhance the gains they were making, by enabling teachers to extend their technical skill and repertoire of ICT applications, without requiring casual teacher relief. Technically proficient individuals are in a position to imagine different futures and enact strategies to achieve these in part because they are 'at home' with technological possibilities.

[19] Interim findings from investigations conducted as part of a review of the Victorian PiL project and through an ARC research project: Literacy Teaching in the Changing Communications Environment: Reading and Writing Multimodal and Digital Texts.

The anecdotal and interim findings cited above are confirmed in recent international research. The key British agency leading the drive to improve learning though ICT - BECTA reports that issuing teachers with their own portable computers can result in an increase in their enthusiasm for their work (BECTA 2002, 2003a). Other research findings cited in BECTA reviews argue that everyday ICT competence in school staff – including ICT competent administration staff – is critical if ICT is to have a positive effect on school improvement (NFER, 2000; Venezky and Davis, 2002). In analysing research findings that showed ICT had made little impact in the classroom, another UK researcher concluded:

> It is therefore unsurprising that findings from impact studies show little change in practice: teachers are still not confident about using ICT in their own classrooms; IT has not become integrated into subject teaching, even in Mathematics and science; and training, despite huge central investment, has not effected real change. The positive factors influencing teacher attitudes and involvement have hardly changed in 22 years: having a computer at home; being given school time to become familiar with software and to integrate ICT into schemes of work and lesson plans; and leadership and support from senior staff. These have, and will continue to have, an impact on teacher assimilation and integrated use of IT (Wellington 2004).

This conclusion is underscored in a WA secondary school case study, undertaken in 2002. Here the researchers found that not only did teachers report a lower level of ICT expertise than their students, they also underestimated their students' level of ICT skill. The researchers observed that:

> A worrying aspect in this study is that teachers may be selecting 'safe' ICT, that is, ICT with which they are familiar and comfortable and may be pitching the content at a level that approximates the teachers' own expertise level. If students' expertise levels are actually as they reported, this could result in frustration, boredom and disengagement by students (Scott & Scott 2003).

Evidence from *Teachers have Class!* participant reflections does show that many are moving beyond the 'safety zone': applying their new skills to change the learning environment and engage their students in authentic tasks. The challenge will be to sustain these efforts beyond the life of the professional learning program through school-based support including explicit action to embed reflection on practice into school cultures (Fullan 1982; Hawley & Valli 1999; Little 1999).

Transferring work-integrated learning into teaching

It is unfortunately not uncommon that professional development programs promising they are based on 'adult' learning principles consist primarily of didactic transmission of propositional knowledge, leaving the hapless student to bridge the gap between theory and practice once the course has ended. Research on effective professional learning consistently points to the importance of grounding learning in the tasks, questions and problems of practice (Ball and Cohen 1999, Hawley & Valli 1999).

As illustrated in the extracts from participant reflections and survey responses cited in this case study, the success of pdPoint fundamentally turns on the extent to which teachers can transfer their learning into effective teaching. While a significant number of participants have reported positively on their capacity to apply their learning, this was not universal: not all teachers 'got it' solely on the basis of the resources available in an online learning environment, however good they are. Nor did all participants see the program as an opportunity to learn new practices; indeed some teachers explicitly said they did not expect this program to change their teaching. What they were looking for was a way to save time in lesson preparation – to be able to do the same things more efficiently. There were teachers who said 'this is on top of everything else' – just one more thing to fit into an already crowded day. Here ICT is regarded as a new piece of content or an additional pedagogical hoop to jump through rather than a means of facilitating exciting new ways of learning.

This is a complex problem that demands action on several fronts at once, and one which is not wholly amenable to solution given the competing demands that teachers face. This is particularly so in senior secondary schools where innovation is not rewarded to nearly the same extent as is doing the same thing better to get students through exams. However, and while not a complete solution to this problem, there is an opportunity built into the pedagogy of pdPoint to integrate the outcomes of this professional learning experience into the ongoing work of the current and past participants and to build an ongoing community of practice within and across participating schools. The reflections on practice undertaken by all teachers who complete the Instructor-led workshops are a rich repository of data on the way that the outcomes of pdPoint are being taken into the classroom. In their present form they are simple notes that need to be recontextualised to make meaning beyond the confines of the particular workshop and its immediate community, but are nevertheless the raw materials for the generation of resources to encourage the development of new curriculum and pedagogical strategies.

Where to from here?

In its first two years the online professional learning has demonstrated its popularity with teachers, and evidence collected to date suggests that it is educationally sound and cost effective. The project has increased the ICT take-up by teachers by adding impetus to moves in WA towards online teaching and learning. The injection of targeted funds has enabled WA DET to comprehensively test an online product, identify success factors and develop criteria for testing products for adoption in the future. Moreover pdPoint has contributed to the outcomes of the Learning with ICT initiative by providing teachers with access to additional curriculum resources and professional learning support. Already the pdPoint project has contributed to the design and roll-out of other professional learning. WA DET has emulated the key features of pdPoint in redeveloping their own professional learning course – *Making Consistent Judgments (MCJ)* – for online delivery[20]. The feedback on the MCJ pilot in the remote Pilbara region has been extremely positive, confirming the outcomes of the pdPoint experience and ensuring that online professional learning continues to be available to WA teachers. Indeed it is now a central requirement under DET curriculum policy: online delivery must be included in the DET suite of professional learning options. The online learning model implemented through *Teachers have Class!* has proved to be both sustainable and transferable. When WA DET enters into arrangements for the provision of online professional learning at the conclusion of the PiL project, it will use the findings of this project to draft the pedagogical standards, end-user features and delivery options to be included in the tender specification.

There are two major achievements coming out of the WA PiL project to date: first, it has helped to consolidate new directions in professional learning such that online professional learning is now firmly on the policy agenda. Secondly, the partnership between Microsoft Australia and WA DET has matured into a valued relationship. This is not a one-off and one-way relationship in which Microsoft provides money and the DET provides a site for fulfillment of corporate citizenship goals, but a genuine partnership based on common interests in the improvement of teaching and learning through ICT, the sharing of research information and joint planning for the implementation of innovative initiatives.

[20] The MCJ online course gave teachers access to an accredited professional development courses, which previously required three day face to face attendance, without having to leave their schools. The course enabled teachers to share students' work online as part of the process of moderating teachers' judgements about student achievement. Teachers accessed video footage, audio and text and an online journal, participated in web conferences and online discussions and were able email an online facilitator (http://www.det.wa.edu.au/education/curriculum/socs/opl.html).

There are several challenges ahead in embedding the positive outcomes of this relatively small initiative into ongoing practice across the state. Achieving critical mass – ensuring that significant numbers of teachers are willing and able to participate – is clearly important, as is extracting the maximum from the program through school level follow-up. A further challenge – beyond the scope of this case study but of direct relevance to ICT professional learning – relates to the question of initial teacher training and the ICT skills and curriculum integration strategies that new teachers bring into their initial professional practice. WA teachers interviewed in 2006 and several respondents to the survey mentioned their concerns regarding the readiness of newly trained teachers to engage in ICT enhanced teaching and learning. At issue here is the other side of the argument presented earlier in this case study about skills being more than 'merely technical'. Despite being confident 'ICT natives', young teachers are often limited in the extent to which they can apply their skills because they are inexperienced in the practical skills of teaching. To some extent this does speak to overly theoretical nature of some teacher training programs; however, pre-service practice can only prepare for, not embed professional capability. There is an opportunity here to consider linking the pdPoint experience with two-way peer coaching that would bring together teachers with advanced ICT skills and teachers with well developed pedagogical skills and lengthy experience, in the context of team based professional learning and ICT application.

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