Last November, the ACCE board meeting was held in Darwin and board members took the opportunity to visit Northern Territory Schools. Three of these schools highlight the different ways IT was embraced to enhance student learning.

GAIL SMITH  
Stuart Park Primary School

I began teaching at Stuart Park Primary School in 1999. It was undergoing a refurbishment program due to be completed early 2000. In this major upgrade, was the plan to include a Computer-based learning class. A room was purpose built and networked for a full classroom of computers. Large octagonal tables were designed, built and placed in the room before being networked and cabled. Power points and network connections were fitted around octagonal boxes in the middle of the tables, where the poles that carry the cables extended to the roof. This was a carefully designed method of keeping the cabling out of the way. The room was larger than the average classroom and special lights were fitted, along with lockable cupboards for laptop computers. This was exciting and a new concept for teaching in primary schools in the Northern Territory and for most of Australia. This initiative sparked my interest!

Staff were told about this computer-based learning class, which was to start in the new year. The Principal seemed keen when I showed interest in teaching this ‘soon to be’ new class. Several meetings were held regarding this class. I began to have second thoughts! The idea of teaching in such a classroom was attractive, but how was I going to begin to plan, for what now seemed inevitably a 5/6/7 class, sustain an interesting programme all year and at the same time cover all expected outcomes and keep at least one step ahead of the children? It was all happening too quickly and I was getting cold feet! However, I was to be the teacher of this class for 2000.

I discussed this class with the Schools Project Officer, who had recently conducted professional development sessions in computer technology at Stuart Park School. She offered to assist me set up goals and begin to plan for this class. Her advice, assistance, support and guidance were invaluable. I decided that De Bono’s Six Hat Thinking, the 12 Intelligences and Inquiry Learning were the best approach. In giving children the skills to problem solve and think in different ways as well as being able to employ a focused questioning technique would allow them to become clever computer users as well as clever learners. This was to be my approach.

On day one, many children did not have their computers, as requested, so that we could begin the school year in a similar fashion to all other classes. In hindsight, this was not a good idea as it took an enormous amount of time to eventually get all computers up and running on the network. Also, the list of required specifications were too broad and the range of choices too many for parents. Consequently, we ended up with a mix of old and new computers, laptop and desktop computers and many different brand names and types. This had inherent problems and inevitably, became very difficult and time consuming to ensure all the computers were set up and working...
properly. Two parents came in to do the initial set up, but after that I was left to do it myself or wait until they were able to come in again. Some computers came without network cards, sound cards. This caused problems.

The children soon came to realise that they needed to be responsible for their own computers and the care and safety of them was in their hands. Discussions centred on good care and maintenance of computers, ergonomics, importance of regular exercise breaks from the computer after a fifteen-minute period and correct start up and shutdown procedures. Due to the height of the custom made tables, the chairs were not suitable. Several specially designed computers chairs were tested and the children had a chance to comment on the comfort, durability and likeability of each chair. Finally, one was decided upon and a class set was ordered.

As the year went on problems arose with various computers. Within weeks of each other two of the same brand laptops had hard drives crash and had to be sent back to the supplier and replaced. We had no back up plan for what these children would do without their computers. Some children had computers from home that already had months, or in some cases, years of work done on them. If anything went wrong with them we were unable to do much as they usually had no drivers supplied or the correct software CD was unavailable. I was unaware that so many problems could develop in such a short space of time and take so long to rectify. I was experiencing one of the largest learning curves I had ever encountered in my life.

As there was no technical support within the school, support was sort via the parent body. This was forthcoming but not reliable or readily available when the problems occurred. I was becoming frustrated with the whole situation. In the Northern Territory power fluctuations and blackouts are a part of life, especially in the wet season and this was a problem for our network. When the network was down, children with desktop computers could not access their computers as it was on the network or not on at all. Laptops continued to work on battery. Before long I had each child logging on from a choice of hardware profiles. This enabled work to continue regardless of the network being down or not. Work suddenly became easier and the children were becoming quite good with basic troubleshooting. The problem of having someone to advise, repair or undertake a specific problem with the computers continued to be an issue.

We entered the Australian Schools’ Web Challenge and discovered the lack of appropriate software within our school was a problem, especially for graphic optimisation and manipulation of images before uploading our site. We made do with trial versions of programs, which we downloaded from the net. We eventually completed this task and uploaded our site. Soon we were advised that we were winners of the NT Youth Web Challenge, Primary Section and soon after, that we were National winners of the Australian Schools Web Challenge. The year finished on a high with all the initial hard work, learning of new technologies and ways to use this technology to enhance learning seemingly becoming an integral part of our class. I had reached a new level, one that I reflected upon and felt satisfied with in the end.

A review of the class was undertaken and a two-year initial period was set before a full assessment was to be in place. At least this class had interested parents sufficiently to warrant a green light for another year, with the possibility of another class starting in 2002. Technology was setting the pace, the children were enjoying the class environment and I was embracing each new learning opportunity with enthusiasm. Hopefully, this had been reflected throughout the year in my teaching and the goals and achievements reached by the children. They were motivated, happy and enthusiastic about all aspects of their learning. Online projects and the use of technology had become second nature to these students. They were being prepared for the future empowered through using technology fully in order to advantage and enhance their learning. My advice is to try it, and reap the benefits on offer through the use of today’s Information Communication Technology and really prepare our students for life!

SANDY CARTWRIGHT
Bakewell Primary School - An IT Journey!

From its inception in 1999 Bakewell Primary has been developed to maximise use of the latest Information Technologies and to capitalise on educational best practice. We have established the infrastructure to enhance student learning,
empower teachers and improve administrative practices by:

- enabling the efficient management, organisation and distribution of information, and,
- facilitating communication and collaboration locally and globally.

Bakewell Primary is a large sized urban primary school located in the Palmerston suburb of Bakewell (approximately 25kms from Darwin in the Northern Territory). The Primary School enrolment has now reached 450 and the Preschool 100.

The buildings are of a modular design with four general learning areas each with four classrooms, a withdrawal room and a teacher preparation area. The Library / Special Education, Preschool, Administration and General Purpose / Assembly areas are all free standing. As the school population has grown beyond original expectations two double demountables have also been installed on the grounds.

**VISION**

- Bakewell Primary School will remain a technology rich environment that develops and implements exemplary practice in the integration of IT across the curriculum.
- All staff will continue to be encouraged and supported in becoming high level, competent users of Information Technology in their teaching/learning programs.
- High levels of access to Information Technology will be maintained for all staff and students.
- All students will have access to appropriate levels of Information Technology throughout the school as identified in our Key Information Technology Outcomes.
- Staff and students will continue to explore and develop the potential of Information Technology supported learning and the Global Classroom.
- IT will be sequentially integrated into the learning program from Pre to 7, through developing the interface between the Teacher Librarian and library, the IT Specialist and the IT Learning Centre and the class teacher and classroom.

**MAJOR FOCUS: Information Technology**

A major investment in information technology saw the school open with an extensive array of networked equipment. The entire school is fully networked, linked to two servers and on the Northern Territory Government LAN. Extensions to the network have trialed radio networking technologies.

During the set up of the school resources were allocated to purchase three desktop workstations and a laptop for each teaching area. All teaching staff were issued with a laptop computer that was linked to the student network. It is available for student use during class time bringing the number of workstations to 4 in each classroom. Each General Learning Area (GLA) has two printers networked and placed centrally in the withdrawal room. Every computer in the school has access to the Internet. All staff and each class has their own nt.gov.au email address and the school subsidises a home email address and internet access for all staff. The library opened with a bank of workstations including a scanner and more powerful computer for multimedia work. The school made a significant investment in a digital projector, digital video camera and digital camera to assist with student and teacher outcomes.

All staff made a commitment to utilise non contact time for Term 1 during 1999 to improve their skills in information technology and to learn how to maximise the benefits of the equipment in their classes. A CPPT (Co-operative programme, planning and teaching) model was used and we saw teachers and students learning best practice side by side. Most staff have attended the out of hours programs provided to address IT competencies within the school which have been held over the past two years.

The challenge for Bakewell has been to maintain this level of hardware and expertise as the school student and staff population has grown. The Information Technology Action Group was instrumental in developing the Bakewell MANTIS (Management of Technology in Schools) plan, policies and expectations for this focus area, including the formulation of ‘Key Information Technology Outcomes’ for students. A Bakewell Computing handbook was compiled and is continually updated and revised and has become a vital resource for new and more established teaching staff.

Time is set aside at staff meetings for technology hot spots where staff are encouraged to share with colleagues technology tips to help maximise technology use and student outcomes.
Senior staff have attended and been involved in programs to develop and enhance the use of technology on a system wide basis.

Email is used as the primary method of communication within the school with teachers and classes using email as a communication tool throughout each day. Buddy classes supplement this with net meeting. All administration messages to teachers are sent via email. Teachers are expected to log on to the network each morning and remain logged on during the day to enable them to send and receive emails.

In the classroom, programmes focus on maximising student engagement, drill and practice software, touch typing skills, desktop publishing and electronic communication and presentation. The library plays a pivotal role in the management, organisation and co-ordination of access to information and assists students’ development of digital enquiry and literacy skills. Through the IT Learning Centre, students and teachers learn about a specific range of technologies, networked communications and develop a commitment to reengineering classroom practice and behaviours. The IT Learning Centre is also the vehicle for the provision of student extension programs.

The use of Power Point as a presentation tool for student assignments in the upper primary classes has developed. The ‘First Families Project’ in 1999 provided the first example of this method of presentation. Upper Primary students have become proficient with this tool and are now incorporating animation and audio into their presentations, which have since been shared with the wider school community. They have participated in internet projects such as ‘Harry Potter’ and ‘Virtual Olympic Games’, where their work has since been showcased all around the territory. The development of the school intranet took considerable time and commitment from students and the aim is for each class to have their own site on the intranet as well as sporting teams, whole school activities, Student representative Council information, House pages etc.

Students from Years 4-7 are invited to join the Computer Management Team.

This group of ten students per year take a leading role in the school by supporting teachers and students with the IT in their rooms, assisting teachers after school with technical difficulties, co-ordinating the intranet, conducting tours and co-ordinating presentations to visiting teachers. In 2000 the Early Childhood Computer Club was also established with a group of 10 students from Year 2 to Year 4. This group meet weekly to enhance their own skills and they then take a leading role in their own classrooms.

Technology has remained a prime focus for staff throughout the past two years. There is still a range of levels of use with technology across the school but all children in all classes have regular access to technology within the classroom to support their learning. This will remain an area of primary focus for the school for some time. A challenge for the school is to find the resources required to maintain optimum levels of technology in the school as the population grows.

**Margaret Little**

**Casuarina Senior College**

Casuarina Senior College has about 1000 day students, approximately 650 night students and 80 day staff and 50 night staff. The College caters specifically for the needs of post-compulsory secondary students in Darwin. It provides students with a broad range of post-compulsory courses from Vocational Education and Training (VET) to Northern Territory Certificate of Education (NTCE). In addition, the College offers a wide range of adult night classes, both as an extension of the day classes and for those seeking to re-enter or extend their education.

The development of IT within the College has been an evolving process and the IT facilities have developed over the years on whim, need and availability of money. Where possible IT facilities have been integrated throughout the College by developing computer labs and internet access within faculties and working areas of the College. The introduction of a fibre optic backbone through the College has allowed the linking and refinement of previously disparate local networks.

The specific aims of the College IT policy in relation to curriculum is to ensure that appropriate IT specific curriculum is provided, and that IT is available to support learning outcomes in all curriculum areas. A recent audit of staff and students was undertaken at the end of 2000, and the preliminary results indicate that, in general, students claim a high level of technology skill, which has significant potential for the integration of ICT into College programs and planning. I have
taken this opportunity to review the use of IT in the College and to speculate on whether it is working and reasons why.

**CURRICULUM DRIVEN IT**

Firstly, the computing faculty where the nature of the curriculum is computing and as such is dependent on IT and this in itself creates challenges. As the staff and the world become increasingly computer literate, they are no longer satisfied with the basic applications to provide tasks that are meaningful eg Claris Works for Desktop Publishing. As years 11 and 12 are the interface between the work environment or further education there is an increasing need to provide industry standard software and consequently the equipment able to run this software. This places enormous pressures on funding and staff. With an increasing use of computers in peripheral activities such as email, internet research, website design and maintenance and presentations during the normal course of running a business, it is difficult to simulate the work environment and work experience that is current, without this industry standard software and equipment.

This contrasts with the electronic and technical studies areas, where they have made a feature of their course, time for students to add RAM, change mother boards etc to aging computers, or rebuild computers from parts from old machines. These machines can be used to service curriculum areas where requirements for current industry standard machines are less at relatively low costs.

Business education, specifically accounting and economics have a curriculum delivery requirement for IT. Economics is an online curriculum area where people expect to use internet resources as current information is the only information that is valuable. Activities such as the stock market game being a great motivator and facilitator to business practice. Access to IT facilities for business has been possible because of the geographical location of this faculty close to the computing faculty. Recently the school has been involved in a trial testing the use of satellite download. It has been very noticeable how, with the quicker transfer rates, students are more actively involved in the stock market game.

Using the satellite link, students are able to check market prospects and make decisions within their lunch hour and the labs are a buzz with the next capitalists of the world.

**SURVIVAL AND THE NUMBERS GAME**

Then there are the areas such as Art where there has been a need to service for an additional client group, in this case VET courses for graphic artists. VET courses and consequential links to industry have meant that teachers are aware of IT and its implications and use for the delivery of the curriculum. Running a VET course for graphic artists has meant that the IT equipment and software acquired has benefited all Art faculty clients, not just the VET students. The use of IT in Art allows students to be creative without necessarily being dexterous. Drawing software enables students to experiment quickly and easily, so that even though they may not be artistic, they can become adept in creating effects. IT provides ideal teaching tools and techniques. Plus this of course impacts on associated areas within the faculty such as photography, who are also able to benefit from the additional resources if they are not being used.

**INITIATIVE, DRIVE & PREPAREDNESS TO INVESTIGATE & TAKE RISKS**

In other areas it is the people and their enthusiasm and preparedness to investigate that has resulted in an effective use of IT to support the curriculum. In the Science faculty, about a year ago 2 people who were interested in IT joined the staff and at the same time the faculty acquired some cheap machines which were put onto the teachers’ desks. This gave the teachers the experience and vocabulary to be able to discuss their IT requirements and sparked enthusiasm to investigate and discover what was out there that supported the delivery of their curriculum. Science currently has 2 student computers in the labs with Pasco equipment and software. They have acquired a site license for their software and are anticipating financing for new hardware, including projection facilities.

Areas such as English and Social Education don’t necessarily have a set curriculum requirement but rather a general need eg for word processing essays, electronic corrections and research. As it’s difficult to specify a purpose attached to a specific curriculum requirement then priority tends to be less and consequently resources are fewer and of a lower standard. This area has the added challenge of having to make budget choices between books and IT.

Our Special Education Faculty has found IT particularly enabling for students with a disability. The use of computers magnifies the support resources because they provide immediate feedback that would normally come from one on one attention. It advantages students with problems with writing and provides support tools such as spell checks. Importantly, IT enables students to produce work that has the appearance of value.

**WHY ARE SOME AREAS PERCEIVED TO BE MORE SUCCESSFUL THAN OTHERS?**

Every faculty is different and has individual circumstances that have led to the evolution of their situation. It is very clear that those areas where there is a curriculum requirement have had priority. It is hard to pin point whether it was teacher enthusiasm or the real world experience and consequently the terminology and savvy about what IT can offer, that has made some areas better equipped. There have been a number of factors which have all made a contribution, however I think it is the leadership and drive from within the staff (and students) together with the commitment to use their budgets or apply for external funding where available that have been the more successful combinations. As the College has developed it’s IT policy and made the commitment to IT in terms of a IT budget, an IT coordinator and professional development for staff, the integration of IT is becoming more pervasive and extending college wide.